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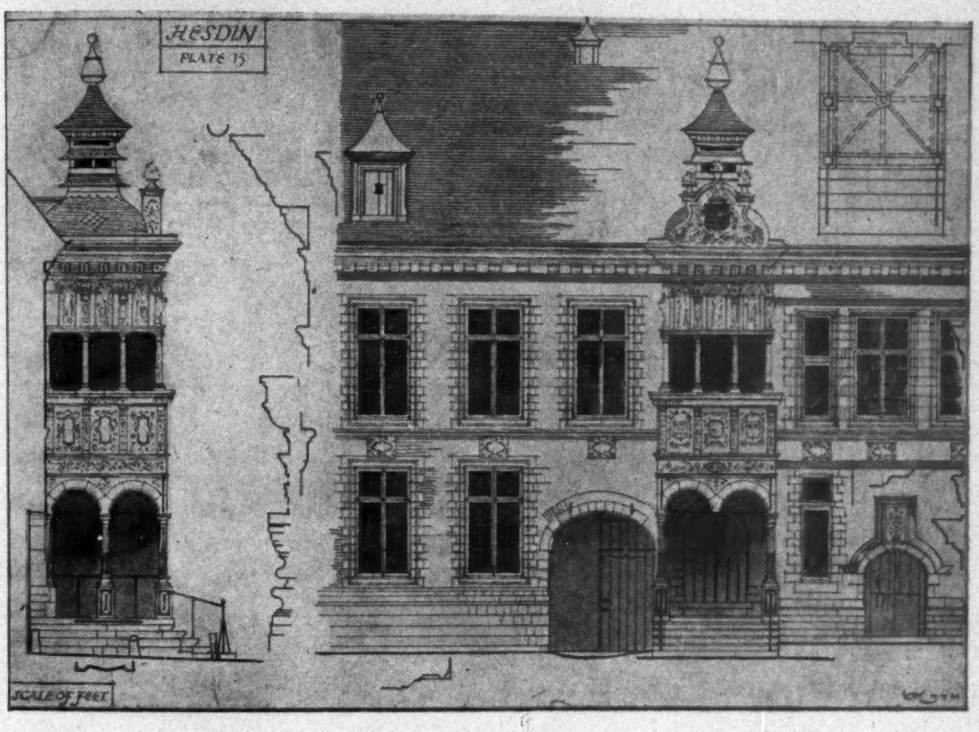


Civic Building, Hesdin, Northern France.

MEASURED AND DRAWN BY MR. H. W. COWLISHAW.

MEETINGS

WEDNESDAY, *October* 7.

L.C.C. Central School of Arts and Crafts. Sir Banister Fletcher on "A Comparative Analysis of Gothic and Renaissance Architecture." 6 p.m.

Institute of Fuel. Dr. W. R. Ormandy on "Coal: Smokeless Fuel and Oil from the National Standpoint." At Institution of Electrical Engineers, Savoy-place, W.C.2. 7 p.m.

FRIDAY, *October* 9.

Society of Chemical Industry. Mr. D. M. Wilson on "The Manufacture and Testing of Asphalt Paving Material." At Burlington House, W.1. 8 p.m.

FRIDAY-SUNDAY, *October* 9-11.

Town Planning Institute. Annual Country Meeting. At Bristol.

SATURDAY, *October* 10.

Royal Institute of British Architects. Mr. Clough Williams-Ellis on "Architecture? What's the Use?" 3 p.m.

Architectural Association. Mr. Eric R. Jarrett on "Building of the House." 3 p.m.

TUESDAY, *October* 13.

Institution of Welding Engineers (North-Western Branch). Mr. L. B. Wilson on "Application of Resistance Welding." At Manchester. 7.30 p.m.

THURSDAY, *October* 15.

Institution of Welding Engineers. Mr. E. B. Partington on "Autogenous Welding of Lead and its Alloys, Ancient and Modern." At the Institution of Mechanical Engineers, Westminster, S.W.1.

FRIDAY, *October* 16.

Institution of Mechanical Engineers. Special General Meeting. 6 p.m.

FRIDAY, *October* 16.

Hampshire and Isle of Wight Architectural Association. President's Address.

SATURDAY, *October* 17.

Royal Institute of British Architects. Mr. H. S. Goodhart-Rendel on "Opinions upon Furniture and Decoration." 3 p.m.

WEDNESDAY-SATURDAY, *October* 21-24.

Garden Cities and Town Planning Association. Housing and Town Planning Tour. At Manchester and Liverpool.

THURSDAY, *October* 22.

Institution of Electrical Engineers. Ordinary Meeting.

FRIDAY, *October* 23.

Institution of Mechanical Engineers. Presidential Address, by Lt.-Col. E. Kitson Clark. 6 p.m.

SATURDAY, *October* 24.

Royal Institute of British Architects. Mr. A. S. G. Butler on "Tendencies in very Modern Buildings." 3 p.m.

Architectural Association. Mr. Edward Maufe on "Furnishing and Decorating the House." 3 p.m.

MONDAY, *October* 26.

Architectural Association. Presidential Address by Mr. A. B. Knapp-Fisher on "Outlook." 7 p.m.

MONDAY-FRIDAY, *October* 26-*November* 13.

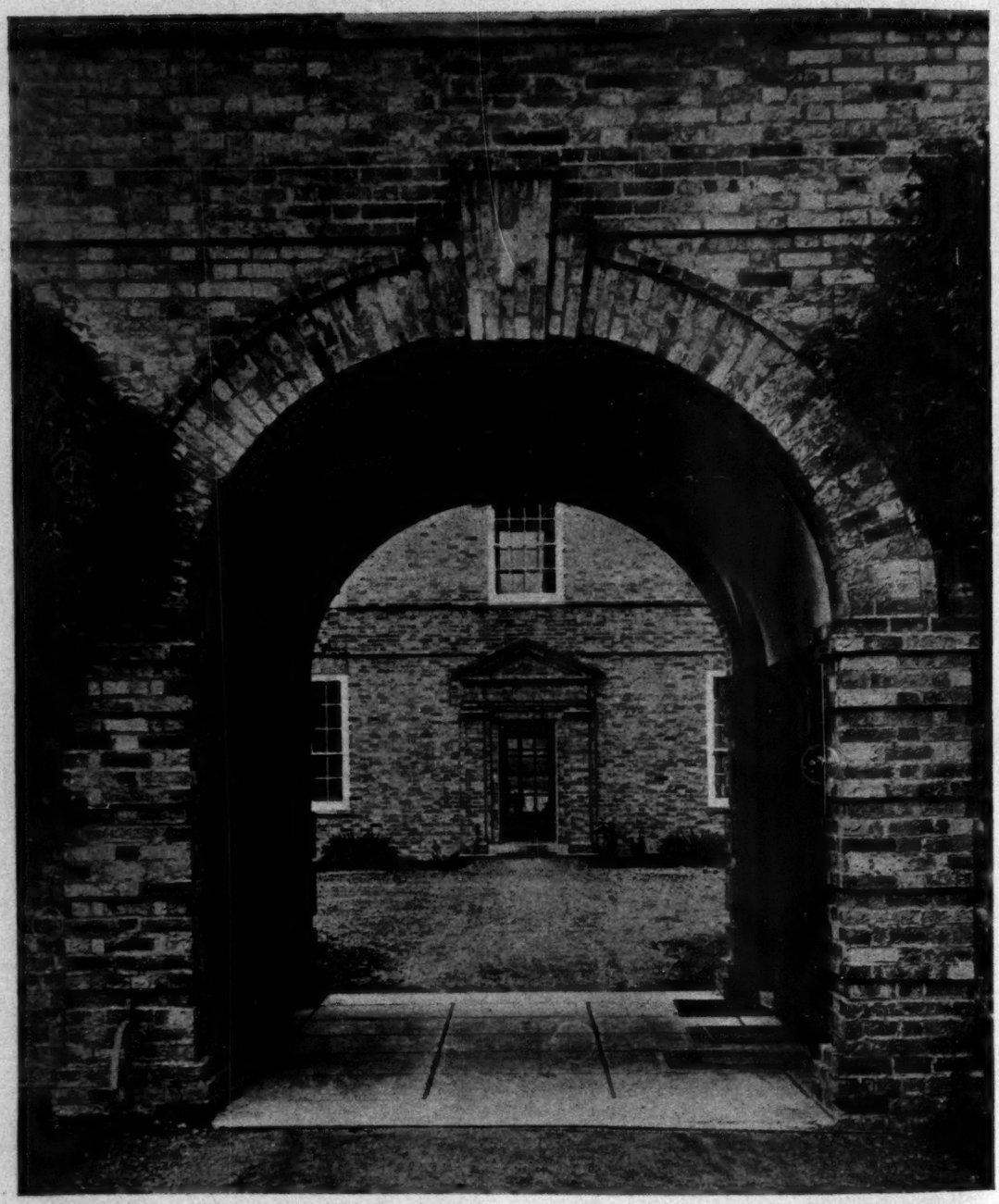
Architectural Association. Annual Exhibition of Members' Holiday Sketches, etc. 10 a.m. to 10 p.m.

SATURDAY, *October* 31.

Royal Institute of British Architects. Mr. H. B. Creswell on "The Uses of an Architect." 3 p.m.

THURSDAY, *November* 5.

L.C.C. Central School of Arts and Crafts. Mr. A. Howard on "Hardwoods." 7.30 p.m.



National Institute of Agricultural Botany, Cambridge: Entry to Court from side road.

MR. P. MORLEY HORDER, Architect.

HEATING AND VENTILATION

THE reckless spending of the War years has had a moral as well as a financial effect upon both national and domestic economies. Of the financial results we are experiencing the full weight at this moment as never before. Of the moral results we have yet perhaps to realise the full significance; "easy come—easy go" tells a truth once applied to the spendthrift, and now to be denied by few of us. The temptation to spend for the moment, at the moment, and looking no further than the moment is one to which we can easily fall and, once fallen, the more hardly resist. There is as much wisdom in careful spending as in saving, for careful spending has much of the flavour of wise investment in that the interest on an amount of capital expended may show a marked saving upon the various and perpetual small income expenses which it may obviate. It is indeed a difficult matter to overcome a financial depression when fluid capital becomes so scarce that the wise spending out of capital becomes impossible and the perpetual charges impossible to terminate. As a country we suffer from much of this complaint, and as individuals we meet the similar occasion daily, and never more so than as householders and housebuilders.

Ever since the War it has been the rule rather than the exception to make the economies in first cost, and ignore future commitments as to maintenance to a very great extent; and the repair and maintenance bills upon post-War properties are often simply staggering, measured in pre-War terms.

In this connection we must not think only in terms of the bills paid to jobbing builders and decorators, for the economies of housekeeping cover a much wider field. This week's number, devoted in part to the subject of Heating and Ventilating, calls at once to mind the wasteful way in which many of us generate and distribute heat in our homes. Because the bills for coal and gas fall due at different periods we are apt to lose sight of how much redundancy we tolerate in our groove-ridden minds and the amount it costs us. It can need little effort of imagination to realise that, generally speaking, the economical way of generating heat for all purposes in the house is from one source; and that the better that heat is distributed throughout the house the better value we shall get for our money. Central heating is obviously a sensible choice when we design and equip our new homes, or re-equip our old ones; and though we may not yet have arrived at the final method whereby this principle may be satisfied, we have at least a choice of methods which offer advantages far above our normal habit of procedure.

The conveniently placed central boiler, of sufficient capacity, can serve to distribute hot water to all habitable parts of the house, as well as a supply of domestic hot water from the tap. It may cost an amount to instal at which the householder may hesitate; but to the far-seeing it opens a vista of considerable economy. A number of separate heating units, like the open fires of various rooms, not only means a wasteful consumption of fuel, but a waste of energy, though, of course, there are other matters to be taken into consideration. Carried to a certain limit that waste energy may well involve the services of an extra member in domestic staff, or in all cases the dispelling of energy which might be more profitably expended in other directions. Even that does not cover the field of potential waste, for the house which is unequally heated is a place of continual draughts and the nursery of colds and more serious complaints; and the amount of lost energy derived from the universal common cold is a national bill which has yet to be assessed.

These are facts which are generally recognised in a grudging sort of way, but in these stringent times the householder is either reluctant, unwilling, or unable to lay down the necessary capital to establish the economies of the future. He either prefers, or has no choice in the matter, to continue the periodical outgoings uneconomically expended in the time-honoured manner; and we shall probably have to wait for more favourable times to see economies which the heating and ventilating engineer has to offer us more generally taken advantage of. Besides, many householders prefer the open fire with all its sentimental associations and its appearance of cheerfulness and comfort, and we have to admit that sentiment and fancy play a large part in many matters affecting our daily life and wellbeing and our personal enjoyment. Undoubtedly large numbers of people prefer the open fire, which in spite of drawbacks has some great and admitted advantages.

That the engineer has yet to say his last word in the matter has still to be seen. When the nation is able to afford the full capital expenditure there will be opened up to us an age of cheap electrical energy which may be used in a number of ways we have yet to discover. At present the hot-water engineer holds the field to a very great extent, and it is doubtful whether he will ever surrender entirely to his electrical colleagues. We incline to the view that the scientific application of the principle of convection applied to water pipes has advanced to such a degree that we shall not see all this thought and ingenuity thrown on the scrap heap. We may rather imagine that the supply of cheap energy in the form of electricity and the science of hot-water circulation may be combined with some convenient application of cheap electrical energy, possibly in some way which has not yet been considered. It is a characteristic of modern science to build upon past experience so far as this continues to serve, rather than starting *de novo* with each new discovery; and it is this welding of ideas and interests which produces modern equipment to meet modern needs. Only by such means can civilisation cope with the complexities of a population outgrowing its own elbow room.

This subject of Heating and Ventilating in which we are particularly interesting ourselves at the moment is but one detail in the complex system of society, but as it is only by grappling with each several detail as and when it appears that we can complete the whole picture of civilisation, we can well spare an eye from the broad issues which are facing us at the moment to look more closely into this most interesting and useful subject. We shall continue to look for still greater contributions to the problem as our own knowledge increases, and we shall do well to consider how much more we can make immediate use of the services which the heating and ventilating engineer has to offer.

There is no need to stress the point that the applied science of the future must be directed towards reducing capital charges as low as possible to encourage the man of small means to equip his household with the most economical apparatus, so that the energies of the community may reap their full profit. This is a principle which gains recognition daily, for the keynote of future prosperity on whatever scale will always be measured in terms of efficiency.

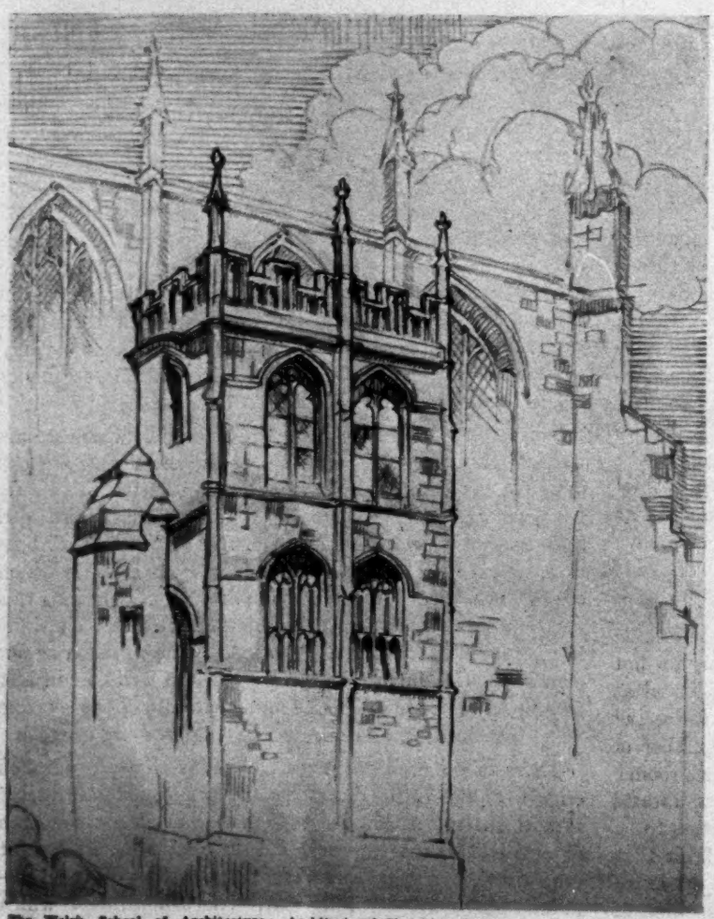
NOTES

Town Planning.

Some realisation of the work which has been done in the development of town planning may be gathered from the exhibition which is on view this week at the R.I.B.A. Galleries. Well executed diagrams and photographs which formed the British contribution to the recent International Town Planning Exhibition in Berlin are on view. These include a diagram of the new Delhi from Sir Edwin Lutyens, London County Council work by Mr. Topham Forrest, and excellent diagrams of planning at Liverpool, Birmingham, Bath and Bristol, Norwich, Exeter, Letchworth, Bournville, Hastings, Melbourne and elsewhere. A fine graphic regional plan of New York and environs, 1928, is a good exhibit, and besides all these there is shown the great plan of the development of London prepared by the London Society, 1914-1918. What will be the ultimate outcome of all this labour it is difficult to say. One thing is certain, however, and that is the immediate necessity for all our towns and cities to envisage the future so that the enterprise which plans the future of our towns may be directed more for the general amenity and well-being of our citizens than has hitherto been done and not left merely to the creation of money values. It is not right that the land in our towns should be looked upon as a means chiefly of enriching private individuals.

Gas and Planning Economies.

The energy and ability of the Commercial Gas Association was demonstrated afresh at the Exeter Conference this week, and the public must appreciate the many services rendered to them by the keen development of the gas industry. At the conference a paper was contributed by Sir Banister Fletcher on the subject of house planning, and we probably all agree that the scarcity of domestic service has stimulated the demand for economic arrangement of house plans. Though insufficient attention has been paid to good house planning we have seen enough to know that competent architects have been fully alive to the possibilities of economical planning, and we have seen many modern plans by architects which leave nothing to criticise from the most exigent of women householders. The architectural profession has suffered very unfairly through the indifference of the many who have not thought it worth while to obtain competent help for the making of house plans. We could point to many houses which are models of convenience and comfort through the agency of architects.



The Welsh School of Architecture: Architectural Sketching Prize.

Gloucester Cathedral: Part of the Lady Chapel.

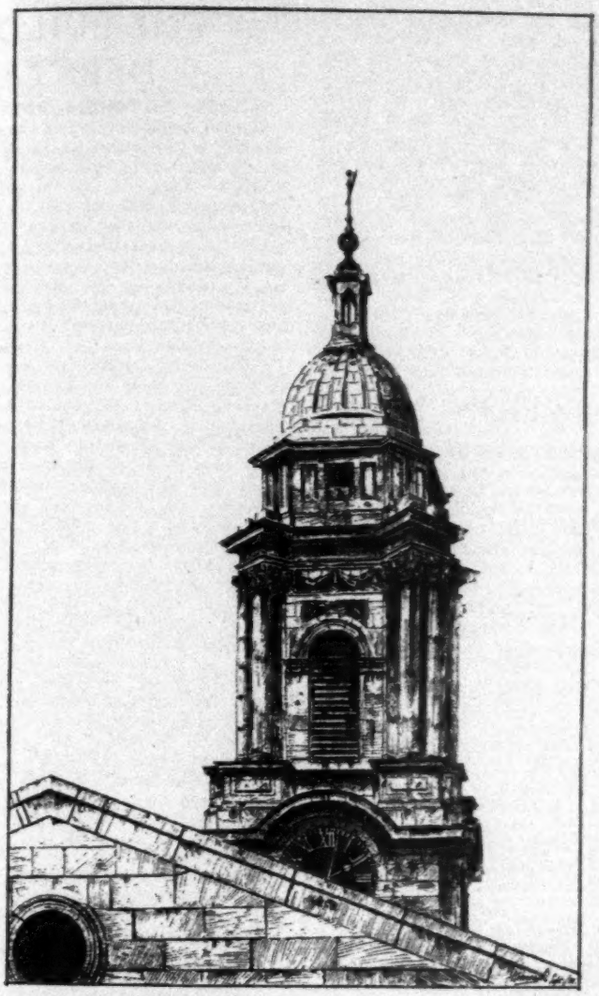
From a sketch by Mr. H. J. W. Lewis (Welsh School of Architecture).

Building Society Loans.

In this time of national crisis, there will be many owners of house property having mortgages from building societies who will naturally be concerned as to what will happen should they be unable to keep up the payments, which are, in most cases, due monthly. At the present time, a large number of local authorities are either abandoning, or delaying indefinitely, large housing programmes, and while—in normal times—this would undoubtedly be good for private enterprise and speculative building owners, the present pause on the part of local authorities is only likely to cause more unemployment in the building industry. In this connection the great building societies can play an important part in the building activities of building owners and speculators in house building. It is reassuring to note that Mr. Harold Bellman, the managing director of the Abbey Road Building Society, in a statement in the *Observer*, has said that the Prime Minister replied to a question in the the House of Commons to the effect that he saw no reason to take steps to bring pressure to bear upon building societies in consequence of the reduced capacity of some borrowers to maintain their mortgage repayments. It was anticipated that the societies could be relied upon to consider all cases of genuine difficulty sympathetically, and that, wherever practicable, they would ease the commitments of borrowers. The investor in property to-day is surely a fortunate individual, for there is not likely to be a fall in the value of good house property. This fact should encourage prospective house tenants to build their own houses with the help of a building society.

Contrast in Values.

Writing to our columns to-day is one who finds himself vainly trying to capture the beauty of Westminster Abbey, and who cannot understand why so much importance is attached to the harmony between rural architecture and the countryside. "The humanity of modern architecture," he says, "is, to the writer's mind, its greatest recommendation." It is curious to note that it is the inhumanity of modern architecture which so strongly affects many of its critics. So we find a striking contrast between those who have found their pleasure in our old traditional work and those who are sufficiently clever and advanced to find in it only a hindrance to our modern design. The beauties of our old cloisters and old domestic buildings make a strong appeal to those architects who have an instinctive sense of good architectural qualities, and the trammels of tradition are probably a cause of trouble chiefly to those who are on the look-out for "modernistic" expression of modern problems.



Tower of St. George's, Hanover Square, seen from 39, Maddox Street, W.

From a sketch by Mr. J. D. Hossack, A.R.I.B.A.

Agreement in the Building Industry.

The whole industry will hear with satisfaction that complete agreement between the executives of all sides was reached at the statutory meeting on Friday of the National Joint Council. At that meeting, the executives of the Operatives, on condition that certain agreed variations were made in the National Agreement, withdrew the notice to terminate that Agreement which had been given. Wages will thus continue to be based on the cost of living scale. The essential alteration in the Agreement will be found on page 561. If there is any room for disappointment, it will be at the cancellation of the joint experiment proposed to be made with regard to the time and progress schedule. Many builders are of the opinion that some sort of plan for payment according to results would have a stimulating effect upon the industry. A number of firms, in fact, already have such schemes in operation. It is possible, however, that memories of the abuses to which piecework was sometimes put, and is not infrequently now being put in the United States of America, have been responsible for the cancellation, at any rate for the present, of what would have been a very valuable national experiment. It is possible that the system will come, but it may come through the example of private experiment. One factor that seems destined to play a large part is the amendment to the R.I.B.A. Code of Professional Practice to the effect, we believe, that the architect shall take an early opportunity of getting into touch with the builder and contractors with a view to formulating a progress chart for the building. This provision, a most important step in the professional code, should facilitate the eventual institution of a national system for additional payments for results.

The British Association.

In connection with the Centenary Meeting of the British Association for the advancement of science and the Faraday celebrations of the Royal Institution, a reception was held at the Laboratory, Bushey House, Teddington, on September 24th by the director Sir Joseph Petavel, K.B.E., D.Sc., F.R.S. A large number of British and foreign visitors were present when the scientific work of the laboratory was demonstrated to the guests. The National Physical Laboratory was founded in 1900 for the purpose of establishing and maintaining precise standards of measurement, making tests of instruments and materials and carrying out research, especially research required for the accurate determination of physical constants. It also undertakes investigations of special problems on behalf of Government Departments, private firms, etc. Amongst the departments visited were aerodynamics, engineering, metallurgy, the William Froude laboratory meteorology, physics, electricity and others—all of which proved of great interest to the visitors who were later entertained to tea and inspected the gardens of Bushey House.

National Institute of Agricultural Botany, Cambridge: Board Room.

Mr. P. Morley Horder, Architect.

GENERAL NEWS

Professional Announcements.

Mr. D. R. Nolans, P.A.S.I., chartered quantity surveyor, 30, John-street, Bedford-row, London, W.C.1, has opened a branch office at 18, High-street, Maidstone, Kent. Telephone : Maidstone 4114.

Mr. Frank J. Potter, F.R.I.B.A., architect and surveyor, has entered into partnership with Mr. Felix Goldsmith and Mr. Humphrey Goldsmith, at 1, Verulam-buildings, Gray's Inn, W.C.1. (Telephone : Chancery 7525.) The name of the firm will be Messrs. Frank Potter and F. & H. Goldsmith.

R.I.B.A. Intermediate Examination.

Following are the dates on which the forthcoming R.I.B.A. Intermediate examinations will be held : November 20, 21, 23, 24 and 26 (last day for receiving applications, October 20).

University Extension Lectures.

Sir Banister Fletcher, P.-P.R.I.B.A., is to deliver at the Central School of Arts and Crafts an illustrated course of twenty-four lectures on the History of Renaissance Architecture at 6 o'clock on Wednesday evenings. Mr. Percival Gaskell, R.B.A., is to give courses of twenty-five lectures, illustrated by lantern slides, on the Italian, French, Flemish, German and Dutch Schools.

Armstrong College Architectural Lecturer.

Mr. T. J. Cahill has been appointed Lecturer in Architecture at a meeting of Armstrong College Council, Newcastle, in succession to Mr. R. Bradbury, who was elected to a Commonwealth Fund Scholarship, and is now in America. Mr. Cahill recently completed a five-year course at Manchester University School of Architecture, where he obtained First Class B.A. Honours. He was placed in the final of the Rome Scholarship in Architecture in 1931.

Northampton Schemes Postponed.

Northampton Town Council had many schemes in hand when the call for economy came, and a special committee has just published a report advocating several postponements, among them the conversion of the site of the old prison into municipal buildings and new police and fire stations and swimming baths, a group of street widenings, and a big road reconstruction scheme. The resewering of the town and a few of the less costly widening schemes are to proceed.

Work on Chichester Cathedral.

The Dean of Chichester has stated that work on the repair of the cathedral has been in suspense for a time, while various questions connected with it and alternative schemes have been considered. Mr. P. M. Johnston, the cathedral surveyor, and Sir Charles Peers, head of the department for the repair of ancient monuments in His Majesty's Office of Works, now say that it is necessary to proceed at once with the work on the great south window. Work is also being continued on the clerestory, and only one bay remains to be dealt with. About £1,400 is still needed to complete repairs.

Limmer Athletic Club.

The Limmer Athletic Cricket Club, having gained the top place of the 2nd Division of the London Master Builders' Cricket League, were entitled to play the winners of the First Division for the President's Cup. The match for this cup was played on Saturday, September 26, against the Broadmead Cricket Club (Messrs. G. E. Wallis and Sons) on the Portland Cement Co.'s ground, and resulted in a win for the Limmer Athletic Club, the scores being : Limmer Athletic Club, 72; Broadmead C.C., 53. The Limmer team has won everything possible, and will next year be entered in the First Division of the League.

St. Dunstan's Annual Report.

The 16th annual report of St. Dunstan's for the year ended March 31, 1931, now issued, indicates that the organisation's financial position for 1930-31 was satisfactory. This coming year, in common with all national institutions, it is probable that St. Dunstan's will find much more difficulty in carrying out the aims which it has at heart. In view of this, it is much hoped that all the support that can be given to this organisation with great ideals will be extended. The building industry can give help in a reciprocal form by using in its work the splendid furniture and furnishings, rugs, tables, seats, baskets, etc., which these excellent craftsmen make; seemingly the great disability of blindness has proved no handicap. A catalogue of these works is obtainable, upon request, to Capt. Ian Fraser, C.B.E., St. Dunstan's Headquarters, Inner Circle, Regent's Park, N.W.1.

COMPETITION NEWS

COMPETITIONS OPEN.

	Particulars published in "Builder."	Sending in date.
Competition for designs for a Mansion House in connection with Birmingham Building Trades Exhibition. Prizes of £60, £30 and £20. Messrs. A. T. Butler, H. B. Hobbiss & J. B. Surman, FF.R.I.B.A., assessors. Conditions from Exhibition Organisers, 71, Temple-row, Birmingham	Sept. 4	Oct. 10
Tuberculosis hospital, Sully, near Cardiff, for Welsh National Memorial Hospital. Messrs. C. E. Elcock, F.R.I.B.A., and T. Alwyn Lloyd, F.R.I.B.A., assessors. Premiums, £400, £300, £175 and £100. Applications for Conditions to Mr. F. J. Alban, Memorial Offices, Westgate-street, Cardiff. Dep. £2 2s.	May 29	Oct. 31
Council School, Birkdale, for the Southport F.C. Limited to Lancs architects. Assessor, Mr. Francis Jones, F.R.I.B.A. Premiums of £100, £75 and £50. Conditions from Director of Education, 1, Eastbank-street, Southport. Dep. £1 1s.	Aug. 21.	Nov. 23.
New Girls' School, Hill-lane, and Bellemoor-road, Southampton, for Governors, Girls' Grammar School. Mr. Sydney Tatchell, F.R.I.B.A., assessor. £150, £100 and £50 premiums. Conditions from Mr. F. L. Freeman, M.A., Secretary to Education Committee, St. Mary's-road, Southampton. Dep. £1 1s.	July 24	Nov. 24
Designs for new orphanage for Committee of Liverpool Orphanage, at Wavertree. Mr. A. H. Moberly, F.R.I.B.A., assessor. Premiums, £200, £100 and £50. Limited to local architects. Conditions from Secretary, Myrtle-street, Liverpool. Dep. £1 1s. ...	July 24	Dec. 8
For designs for new Town Hall and Municipal Buildings, for Walthamstow T.C. Mr. H. Anster Hall, F.R.I.B.A., assessor. Premiums, £500, £300, £200 and £100. Conditions from Mr. F. C. Garner, Clerk, E.17. Dep. £3 3s.	Sept. 18 Sept. 4	Dec. 31
Proposed new Municipal Offices for Norwich T.C. Mr. Robert Atkinson, F.R.I.B.A., assessor. Premiums of £500 for first design and £700 amongst next three. Conditions from Mr. Noel B. Rudd, Town Clerk, Guildhall. Dep. £1 1s.	Aug. 7	1932 March 1
R.I.B.A. new premises. Assessors, Messrs. R. Atkinson, Charles Holden, H. V. Lanchester, P. S. Worthington, and Sir Giles Scott. Premiums, £500 and £750 among runners-up. All questions must reach the Secretary, 9, Conduit-street, W.1, by August 4	April 19	March 31
Open to all British sculptors. For War Memorial to Animals at Kilburn, for S.P.C.A. Mr. W. Reid Dick, R.A. assessor. Prize, £500. Conditions from Sec., R.B.S., 6, Queen-street, W.C.1	Sept. 4	—

"THE BUILDER" DEBATE

XLIV.—PAYMENT FOR SKILL.

SIR,—"Negative" puts words into my mouth. I have said nothing about speed at all, but merely skill, which is an entirely different thing. A test for skill would only entertain the idea of speed when all other factors are satisfied, and if the operatives would co-operate in making the test a real and conclusive one, there is no reason why men should not be fairly and usefully graded. I see no reason whatever why such a system would impair team work in the building industry.

"Negative" cautiously avoids the issue in brushing aside the figures I have quoted. It is no help to say that there are a combination of influences which have produced these figures (I do not know how accurate they may be), which seem to show that brickwork is costing us nearly three times pre-war costs. The cost of living is not even double. The cost of bricks is little more than doubled. The cost of cement is nearly down to pre-war lime. What other factors are there? I have suggested one —lack of effort by the operative with a minor possibility that the generation is physically inferior to the pre-war race. The latter is hard to swallow—thirteen years after the War, with even the unemployed better fed and kept than many of the lower grades of wage-earners were before the War. "Negative" offers no suggestions, but merely says that any such suggestions would confuse the issue. I have no doubt that they would confuse the issue, but the whole conclusion of our arguments rests upon what other reasons he can offer for these eloquent figures.

"Who is to do the grading?" "Negative" asks. I suggest the obvious machinery is one in which employers' and operatives' organisations co-operate in the modern manner, and the Unions ought more usefully to direct their energies to such a problem than work on their present assumption that the unit of man-value is a fixed and uniform quantity.

"What guarantee of continuity of employment can I give to a man?" he also asks. Can "Negative" give such a guarantee under present conditons? If not, what on earth has that to do with this debate? I defy "Negative" to show that I have advocated task-work, or that anything I have suggested implies such a thing.

Examined members in the R.I.B.A. are graded as Students and Associates. Is there any suggestion of task-work about this? Yet it is achieved by a system of test. "Negative" concludes that all other systems but the hourly system must break down. I submit that the hourly system has already broken down to the ruin of workmen and public. Therefore, let us try another.

The concluding paragraph, in which "Negative" declares there is no dead level in the industry exactly illustrates my point. Why a dead level of wages, then? I do not propose to attack the basis at which a man can earn a human living. I wish to open the door to him to become a superman.

POSITIVE.

"Where to Live Round London."

Issued by the Homeland Association, Ltd. (37-38, Maiden-lane, W.C.2, price 1s. net), this booklet deals with the northern side of the Metropolitan area, but includes the N.E. and N.W. sections. It is really a complete guide to anyone contemplating settling in the districts and contains the information required by the person seeking a home. Every district is separately dealt with and full information given upon subsoil, rates, gas and electric current prices, railway fares and communication, etc. Not the least valuable part is the advertising section. A number of illustrations aid in making this book a valuable reference for the architect and builder.

CORRESPONDENCE

Modernism.

SIR,—Concerning the leading article in your issue of September 18, and Mr. Beresford's tirade against modern domestic architecture, the frank opinion of a student who has graduated this year may be of interest to you.

Where man realises that anything is unsuitable or ugly, he alters and amends: it is his privilege. Twentieth-century man would be undeserving of this privilege if he accepted the mass of present building in a spirit of "what is, must be." The young English artist of to-day finds himself in a land possessing much natural beauty and a great deal of man-made ugliness. Some of its architecture he appreciates; the majority of it merely bewilders him. He has been paraded through cathedrals, royal palaces, town and country houses, and advised to admire them. He has toured the country in a car and has been mentally numbed by mile upon mile of domestic development, punctuated by shopping streets where town halls, public libraries and banks—designed, he is informed, by eminent architects—repeat on a larger and more obtuse scale the motifs of the shops and houses. All this, unfortunately, he cannot ignore; but he is not impressed. Occasionally he discovers a building which he enjoys. He finds half an hour in the French Colonial Exhibition more invigorating than days spent in vainly trying to capture the beauty of Westminster Abbey. The former is in a living, the latter in a dead language.

A student of the present time is fortuitously gifted with a wider range of vision than was accorded to the last generation of students who are now in practice. He has fresh in his mind the pageantry of the styles, seen recently in lecture room, example plate, text book and visits to buildings. When he sees the logical successor of these phases growing about him, can he reasonably be expected to turn back through his text books in order to find a precedent for his designs? Quite subconsciously, and without exercising any selection, he falls naturally into the style of his time.

The qualities in modernist architecture which appeal most strongly to present-day students are its comprehensibility, its frankness, its elasticity and its humanity. Its comprehensibility is welcomed as a relief from the artistic bewilderment of childhood. Frankness in design, in so far as windows are made to fit the room, not the room the windows, is a reflection of its logical functionalism. Elasticity affords scope for the building to fit its use, instead of fitting the use in the building. It is due to this inherent quality (equivalent to polyphony in modern music) that such buildings as Rudolf Steiner's Goetheanum and the observatory at Potsdam possess a beauty transcending style. The humanity of modern architecture is, to the writer's mind, its greatest recommendation. If architecture is ever to mean anything to anybody but the architects, it must express its purpose and state its decoration in terms which a man living at the time may understand.

I feel that a review of school work is a misleading criterion, and little guide to the system of design that students will later employ in practice. Traditional designs are produced in schools for three reasons: In the earlier years they appeal as a representation on paper of a familiar type of building. Later they are demanded by the programme. Finally, there is always the scholarly type of student who deliberately specialises in a period, and delights in every programme where a chance occurs to display his knowledge of it. In debate the champions of traditionalism are few. Those who have travelled at all are, as a general rule, the ardent modernists. Here, again, the student meets a check. Some architects object to following the Continental lead on patriotic grounds. I have heard a student's design condemned in the following terms: "Why do you go to Germany for inspiration? We have a good English tradition; follow it. After all, we won the war." This in 1931! Had artists in France and Germany held such views in the sixteenth century, we might still be shivering under the barbarism of Gothic thought. One of our most brilliant modernist designers is a Rome scholar. This speaks for itself.

The older generation of artists in this country lived their childhood during the last decade of the 19th century in homes decorated with the prolixness of the age. Up to the age of five years they viewed life in a setting of brown cosiness, echoing with paternal dogmatisms. By the time they were able to think for themselves on questions of taste, the association of domestic beauty with such surroundings had become subconsciously fixed in their minds. It was not until 1905 that the Brothers Perret first demonstrated the architectural possibilities of concrete. By that time English architects had settled ideas on the form and manners of their art. It is no more to be expected that they appreciate the sunny grace of a modern domestic interior than that they enjoy the painting of a Quizet or a concerto of Stravinsky. They glory in a battle scene, and call Epstein's "Genesis" ugly! During their apprenticeship, office tradition was a sacred thing. In these days of flux in practice, when specialisation is so much the result of chance, the older generation is loth to throw aside the personal glory of tradition to which they were brought up. They cannot understand the open-mindedness with which a modern student approaches a problem in design

It is under such tutors that the young architect has to develop his ideas. Convinced of the correctness of his conclusions, he is yet forced to exhume dead styles from their resting-places on the bookshelves and sacrifice them at the altar of the academic examiner (such mixed metaphor is some indication of the state of mind induced). Many conventions in design appear to be paradoxical. Mr. Beresford's plea for the countryside is an example. To an unbiased observer, the very country lanes, hedgerows, and farm fields, which Mr. Beresford admires, are themselves examples of the so-called spoliation of the countryside of mankind. If only England had sufficient faith in the evolution of man to realise that where he has spoiled so successfully once, he may, in a more enlightened age, spoil still more successfully!

I have never been able to understand why so much importance is attached to the harmony between rural architecture and the countryside. If the principle be carried to its logical conclusion, the perfect building should blend perfectly with the landscape—in fact, be invisible, which is absurd. Surely man should either mould the landscape into a setting for his building, or place his building where it shows to the best effect. It seems impossible that he should ever have timidity enough to think that he exists for the earth and not the earth for him.

There are, however, certain things beyond the power of one man, and one of these is the creation of a style. Mr. Beresford's recipe for a new style (he says: "New development in design, if it is to come to anything, must spring from a logical and thought-out basis and programme") suggests a resolution of the *arbitres elegantiarum*, met *in camera* to discuss building fashions for the ensuing year. To create a style is not within the capability of one man, nor one art. An age may produce it. In any case, it is done subconsciously in the race mind. The modern trend will proceed to its logical development in spite of, rather than owing to, the writings of its protagonists. But it will not be without its supporters. The majority of present-day architectural students will probably follow the trend for the sheer joy of it. They will not further develop a tradition when already they see the effect of it in mass and find it far from good. Out of duty to their souls they will create what is beautiful and humane rather than what is ugly and traditionally correct.

G. QUINE LAY.

Chipping Campden Amenities.

SIR,—I appreciate Mr. Berkeley's candour in admitting I have made a reply to my last letter difficult. I do not suppose the Rating Committee will appreciate the suggestion that they "invariably raise" the rates for cottages built in the traditional manner. I think Mr. Berkeley should withdraw this slur on the authorities.

P. MORLEY HORDER.

The Cost of Building Repairs.

SIR,—Can you tell me why it is that with a good deal of unemployment in the building industry there should be so much property in an obviously bad state of repair and no little difficulty in getting such repairs carried out at a reasonable cost? Why is it that building owners so often allow their property to go to rack and ruin when a small amount of attention at the right time would keep it in a good state of repair?

I suggest that if all the decorative and repair work which is so urgently required were to be put in hand at once, this would go a long way towards relieving the unemployment problem of the industry, besides helping the nation in its time of trouble. I have come to the conclusion that the high cost of building is the main obstacle to such work being put in hand. A small experience of my own is not without interest in this connection.

I recently decided to have a certain amount of decorative and repair work carried out at my house (small suburban property). Knowing something about building, I estimated that it should not cost more than about £20, allowing the builder a good profit. I wrote to three local jobbing builders, describing the work to be done and asking for estimates. The first builder put in an estimate for £38, which was obviously much too high. The second, after keeping me waiting for about ten days, quoted £26—a price which, though on the high side, I accepted. The third ignored my letter for a fortnight and seemed surprised when I told him I should not require his estimate.

This experience of mine provides food for thought, especially as I have reason to believe that it is a fairly common one. First of all, why should there be a delay of ten days or a fortnight in getting an estimate for a small job such as this? Are builders so busy that they do not want more work, or are they unable to obtain suitable labour to cope with increased business? With so much unemployment among building trade operatives the latter supposition is not a likely one. Secondly, why should there be such a disparity in prices? In my own case the work of the lower-priced builder is quite satisfactory, as, indeed, it ought to be. Why should another man require nearly a third as much again to carry out similar work?

I submit that the time has come when this problem should be seriously tackled. I am convinced that if prices could be brought down to a reasonable level a great volume of decorative and repair work would at once be put in hand. If this work is not done quickly, much property will fall into such a state of disrepair that a greatly increased expenditure will be necessary when the work is finally undertaken. Can we afford such extravagance in a time of national embarrassment? Prompt action, as I have indicated, would be to the advantage of the building industry, would save much valuable property from excessive deterioration, and be of real national benefit at a time like the present. If you could ventilate this subject in your columns, I believe you would be performing a national service.

HOUSE OWNER.

THE MODERN MIND

A VOICE FROM THE DESERT.

MAY a humble dweller in an architectural wilderness—one of those from whom it is expected that they will follow without a murmur the latest architectural fashions of the day—be permitted to inquire what are the principles that actuate the modern mind when it applies itself to modern architectural design?

Even in our far distant desert place we know and admire, although we feel we do not fully understand, such architectural virtues as "Starkness," "Expressive of the present age," "Gesture of Negation," "Functionalism." Those of us whose livelihood depends on the practise of our profession may feel perhaps a natural shrinking from a too-zealous adherence to the last-named principle, which, we fear, if pursued to its logical conclusion, may result in our professional annihilation and supersession by the ever-to-be-admired and remorselessly functional civil engineers. None the less, we are filled with admiration, and even feel a glow of unaccustomed virtue when we contemplate the self-denial of a profession, of which we are proud to be members, that can face without flinching its own extinction if found necessary in the interests of the art which it exists only to advance.

We have also made ourselves familiar with some of the simpler features of modern architectural design. For instance, we are aware that the presence of a cornice on our elevations is to be regarded as a leprous indication of the backwardness and barrenness of our so-called minds, whereas the blank spot which results from the removal of the cornice blazons our originality to the world.

I am reminded in this connection of an application for an appointment I received once from a draughtsman, native to our desert, in which he stated that his application was due to the fact "That the vacancy he had been accustomed to occupy had ceased to exist." Unfortunately, he required too high a salary, and there were other difficulties relating to the quality of his specimen drawings, but I have always felt that his mentality must have been particularly suited to the design of modernist elevations, and that with his "ghostly" aid I might have achieved quite a reputation in that direction.

We desert dwellers were interested and gratified to find that the architect who succeeded in building, without the vestige of a cornice on any of its elevations, what is, we believe, the tallest building in London, has been acclaimed a pioneer and leader of the Modernist Movement, and even the R.I.B.A. has graciously conveyed its approval by its award to this building of the London Architectural Medal and Diploma.

Custom, combined perhaps with a submissive and inferior mentality, has prevented the dwellers in my desert from questioning the "functionalism" of awarding annually a medal to a building on account of its elevations alone, more especially when that building is planned and constructed for severely practical purposes in a city whose building regulations and problems are amongst the most complicated in the world. Similarly, we have grown accustomed to the peculiar method of "Expressing the Plan in the Elevations" (another Modernist "mot" with which we are familiar), exemplified by the growing habit of appointing in the case of really important buildings two architects; one of whom is employed merely to design the building and solve the host of practical problems which attend upon its construction, while the other, the "big noise," designs the elevations, or even confines his genius to one elevation alone, the latter an interesting variation of the "Penny plain, twopence coloured" idea.

Those of us whose commissions are not sufficiently glittering and attractive to compel us to share them with the larger birds of prey, may not be directly interested in this phenomenon, but there is competition, even for the humble work that comes our way, and we desert dwellers tremble lest this precedent established by, and for, the great should come to the notice of our ever-watchful rivals, the engineers. Should this occur, they can be relied upon to seize the opportunity of repeating once again their wearisome contention that an architect's sole use, if any, is to titivate the elevations of buildings designed and constructed by those who have neither the time nor inclination to devote themselves to so petty and childish an occupation.

In our desert, as is usual in such places, we find ourselves fascinated by the doings of the great world that lies beyond. Consequently when our copies of the *R.I.B.A. Journal* containing the account of the presentation of the London Architectural Medal were received by means of our fleetest dromedary (milk-white, of course, in accordance with tradition), we leapt upon them with avidity; not so much in order to see the design of the successful building, which the professional journals had already made familiar to us, but in order to ascertain whether the reasons for the award were those we had already imagined amongst ourselves.

You can imagine our delight and the many "I told you so's," when on the very first page we found no less a person than the President himself mentioning in tones of unmistakable approval that the building was "devoid of any useless architectural ornament." You should have heard our jeers at the unfortunate Jones, a man of low intelligence, who, not having the brains to understand the design of some small houses by a very distinguished architect indeed, which he had seen in a recent issue of *The Builder*, had, contrary to our advice, introduced two "Free" Georgian consoles (and a keystone) into his accepted design for the tomb of the Sultan's late lamented fourth wife.

To return to our journals, no presidential reference, we noticed, was made to the sculpture on the elevations of the successful building. Presumably, we thought, because, being neither useful nor ornamental, it could hardly have been expensive, and so was unworthy of presidential recognition. But the value and purpose of this sculpture are points on which we would welcome enlightenment, as sculpture and drawings of similar type are readily obtainable here from the natives and their children, and could be used by us at a trifling cost if really now "the vogue," or, better still, we could arrange, perhaps at a much-needed profit to ourselves, for their importation to Europe.

Our pleasure in the President's opening sentences was of short duration, because the majority of the proceedings was far above our heads, and it was not until a layman began to speak that we felt at ease again; but, alas, in a few words he dashed to the ground our rising hopes that we, too, might, in our simple way, obtain some success in this, the modern movement.

We had anticipated little or no difficulty in persuading our clients to agree to the omission of "useless architectural ornament," in fact, it was rumoured that Jones only obtained his second console by bribing heavily the Chief Assistant to the Sultan's Head Eunuch; but how could we compete with the conception, the grandeur, of those essential and unnecessary upper floors and tower rising in their "striking pyramidal form"?

We, who rarely, if ever, can obtain the sanction of our clients to the use of down pipes, whose flashings are of cement, whose joinery has never seen sandpaper, and only occasionally a plane, and the decoration of whose principal rooms is improved solely, if at all, by an additional coat of whitewash—how were we to build even an essential or unnecessary cupboard, to say nothing of a collection of floors and a tower larger than most of our commissions for an entire year? Great was our dismay.

To make matters worse, the ignoble Jones, eager to avenge his miserable consoles (and keystone), reminded us, as of course he would, that only at our last meeting, as a result of our evident misunderstanding of the principles underlying "functionalism," we had waxed prettily sarcastic at the expense of the Palladian architects; our especial victim being one who brought upon his client Pope's stinging lines:—

"The soaring arch his high ambition shows,
The trickling stream the way his bounty flows."

As may be imagined, the following dreadful piece of doggerel chanted monotonously in Jones's high-pitched and unpleasing tones, did nothing to console us:—

"That pile, with empty floors, distinctly shows
Its 'STARKNESS,' after all, is but a pose,"

the logic of which seems as stupid as its rhyme is bad, because if "STARKNESS" is the fashion, obviously Jones's two consoles (and a keystone) must remain equally indefensible, pose or no pose.

Still, Jones continues to be a nuisance, so we should be grateful if someone could explain to us the principles that actuate the modern architectural mind. It should be in as simple language as possible, please, as none of us is clever and Jones is a man of low intelligence.

THE WATCHER IN THE DESERT.

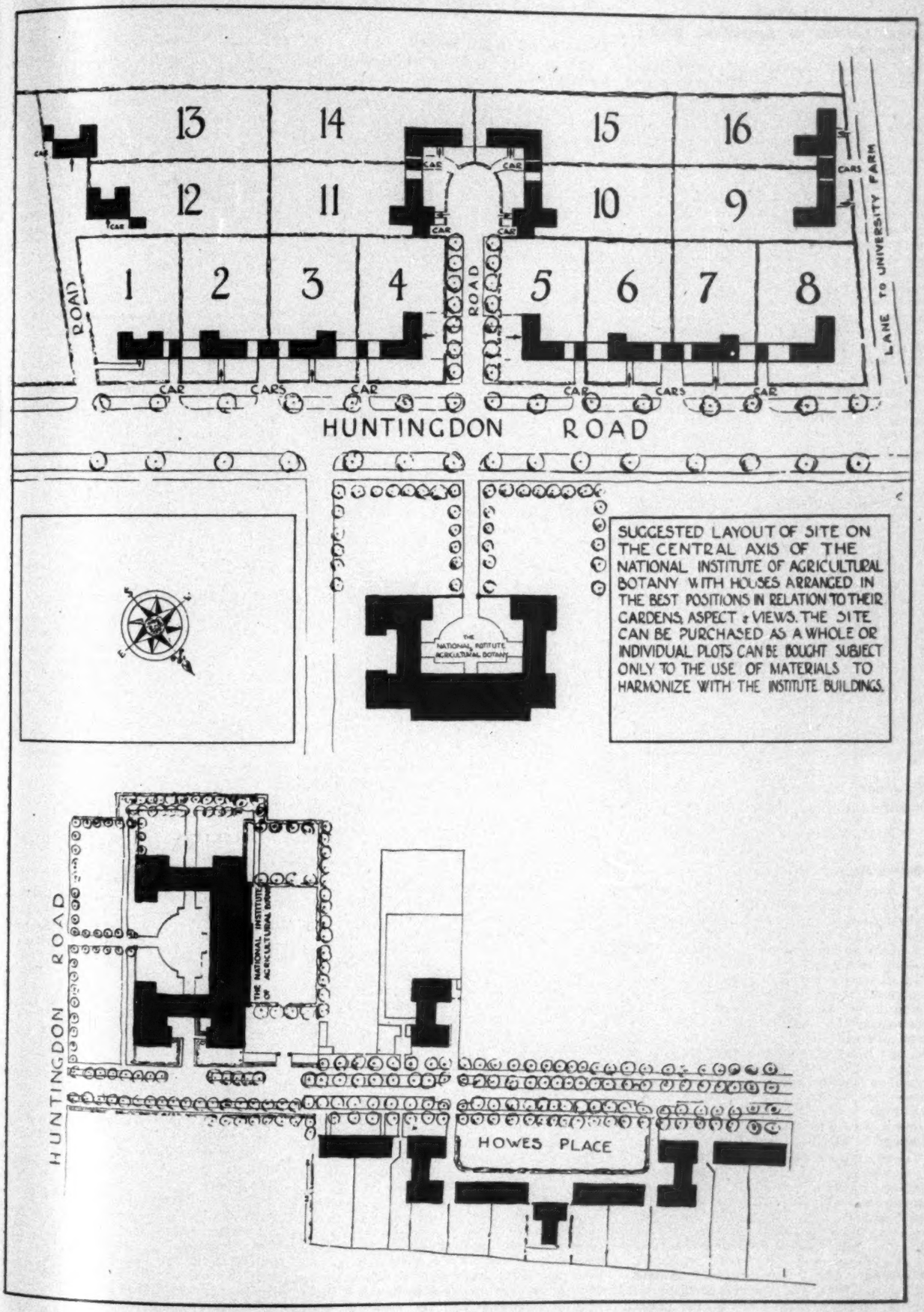
SOUTH WALES INSTITUTE OF ARCHITECTS

The South Wales Institute of Architects held their summer meeting on September 25, when a visit was paid to London. The party—about twenty members and their friends (including ladies)—on arrival in London, made a charabanc tour through the West End, Westminster and the City, to view some of the latest architectural work. Amongst other buildings seen were Sir Giles Gilbert Scott's house, the Underground Railway offices, Thames House, the Royal Horticultural Hall, Bush House, the City banks, etc.

The party were the guests of the Council of the Architectural Association to luncheon at the Association headquarters in Bedford Square, when the members' appreciation of the kindness of the Association in providing luncheon for the party was expressed by the president of the South Wales Institute of Architects, Mr. J. Herbert Jones, F.R.I.B.A., of Swansea. Mr. C. H. James, F.R.I.B.A., replied. Amongst the members of the Association present at the luncheon were the Hon. H. A. Pakington, A.R.I.B.A., and Mr. L. H. Bucknell, F.R.I.B.A.

The party then proceeded to the Masonic Peace Memorial building in Great Queen-street, where they were met by the architects, Messrs. H. V. Ashley and Winton Newman, and the clerk of works, Mr. Bennett, and conducted over the building. Great interest was shown by the members (many of whom were Masons) in the general planning of the building and in the decoration of the corridors and lodges, etc., already completed, and also in the many ingenious devices for saving unnecessary cutting, etc., some of them the invention of Mr. Bennett, the clerk of works. Mr. Ashley, on behalf of the architects, replied to Mr. J. Herbert Jones's speech of thanks for the opportunity of inspecting the building and also for the tea provided.

The following members of the South Wales Institute of Architects were present:—Messrs. J. Herbert Jones (president), C. S. Thomas and Ernest E. Morgan, of Swansea; Messrs. T. Alwyn Lloyd, J. A. Hallam, Percy Thomas, C. J. Ward, J. W. Bishop, A. G. Robertson, J. R. J. Hallett and Ivor P. Jones, of Cardiff; Messrs. E. H. Fawckner and C. E. Compton, of Newport; Mr. W. D. Thomas, of Porth; and Mr. W. T. Evans, of Haverfordwest.



National Institute of Agricultural Botany, Cambridge.

MR. P. MORLEY HORDER, Architect.

ILLUSTRATIONS

PLATES.

National Institute of Agricultural Botany, Cambridge.

The National Institute of Agricultural Botany was erected on the Huntingdon-road, Cambridge, some years ago, for the purpose of improving the quality of farm seeds in general use. The enterprise was largely due to the enthusiasm of the late Sir Lawrence Weaver, who in the War gained an insight into the supreme importance to agriculture of a first-class seed supply. Better crops are quite as much a national necessity now as they were in war time, and the work of the Institute should be of increasing importance. The houses grouped on the side road were built at the same time in harmony with the Institute building. Four acres of land opposite the Institute were purchased with a view to controlling any building opposite the Institute, and we illustrate a suggested lay-out on lines suggested by the Institute buildings and its characteristic lime avenues. The only control here of individual house requirements would be in respect of the position of the houses and the materials used in their construction, which obviously should be the same as the Institute and its houses to get the requisite harmony.

Mr. P. Morley Horder is the architect.

National Institute of Agricultural Botany, Cambridge: Detail of Carving.

Mr. P. Morley Horder, Architect.

"Sussex House," Hampstead.

"Sussex House" is a new block of ten flats situated in Glenilla-road, Hampstead, N.W.3. The flats consist of one living room, two bedrooms, bathroom, w.c., and kitchen. The aim of the building has been to provide light, spacious rooms perfectly fitted and finished, with all services at a low rental. The elevation shows a solution of the problem of providing a satisfactory appearance, and yet eliminating the cost of cornices and other stone dressings, the only stone used being the entrance steps. The building has a large garden at the back and two roof gardens. Each flat contains "Frigidaire" refrigerator, shower, central heating, constant hot water, and with lifts, all decorations, caretaker's rooms and garden walls was built for the low figure of 1s. 6d. per cubic foot.

The main sub-contractors were Messrs. Hy. J. Greenham, Ltd., facing bricks, L.B.C. Flettons, Blue Circle cement and Ferrocrete; Limmer and Trinidad Lake Asphalt Co., Ltd., asphalt; Potter Rax Gate Co., Ltd., wrought ironwork, steel lift car; Medways Lift Co., Ltd., passenger and service lifts; T. C. Jones and Co., Ltd., steelwork; Frigidaire, Ltd., refrigerators; Anselm, Odling and Sons, Ltd., marble fireplace surrounds; Bratt, Colbran and Co., fire grates; Comyn, Ching and Co., Ltd., locks and door furniture; Eastwoods, Ltd., glazed tiling; Crane-Bennett, Ltd., sanitary goods; National Radiator Co., Ltd., radiators and towel rails; Williams and Williams, Ltd., steel windows; Hollis Bros. and Co., Ltd., wood block flooring.

Mr. Howard D. Sugden, A.R.I.B.A., is the architect.

Thanet School of Art, Margate.

The new Art School at Margate, for the Kent Education Committee, is admirably situated in the centre of the town, on a site that is accessible and free from the noise of traffic. Though primarily the school is intended to meet the requirements of the town, sufficient accommodation has been provided for art students from any part of the Isle of Thanet who may desire to study at the school. Owing to the restrictions of the site, the essential features of the school have been grouped round the central exhibition hall, with a balcony at first-floor level. The balcony and the entablature over it are supported by oak columns to harmonise with the doors and oak panelling. To complete the effect of an oak hall, the flooring is of oak wood blocks.

The main entrance is from Hawley-square, through a vestibule to the exhibition hall. Facing the hall and forming a vista is the staircase leading to the upper floor. A second entrance is provided in the basement on a level with Princes-street. The elevations are in brickwork, designed in keeping with the adjacent buildings. The bricks are of two distinct colours, giving a pleasing variation of colour and texture. Cast stone is used for the entrance doorway.

The building contains seven large class-rooms, most of which have direct north light. A large amount of storage space is required, and ample accommodation has been provided for this purpose. A room has been allotted for use as a students' common room, in which each student will have locker space for personal necessities. In addition, there are the usual staff-rooms, cloak-rooms, etc., and, for the country students, storage for cycles.

To encourage evening students, special consideration has been given to the conditions for working in the evening, and, to overcome the deficiencies of the ordinary type of electric-light fitting, a type of day-light electric-light fitting has been installed, which will be of great assistance for evening class work. Heating is by a low-pressure hot-water system fitted with oil-burning plant.

The school was erected by Messrs. J. Elliman and Son, Ltd., of Beckenham. The architect is Mr. W. H. Robinson, F.R.I.B.A. The contract sum was £14,112. The following sub-contractors were employed:—The Crittall Mfg. Co., Ltd., metal windows; the Empire Stone Co., Ltd., cast stone; F. Hayden, Ltd., Tunbridge Wells, heating installation; B. Finch and Co., Ltd., and W. E. Farrer, Ltd., sanitary goods; Jukes, Coulson, Stoke and Co., iron balustrading; E. Saunders, Ltd., Margate, electrical installation; Jefferiss and Co., wood block flooring; the Wilfley Co., Ltd., "Marbolith" dadoes; the North of England School Furnishing Co., Ltd., Darlington, fixed furniture; W. H. Screeton, wall paint.

New Abattoir, Meat and Cattle Markets, Liverpool.

These new buildings have recently been opened at Stanley, Liverpool. The lay-out of the whole scheme may be studied from the plan which we reproduce. The general design of the buildings, which cover 10 acres on a site of 19 acres, was governed by the desirability of uniting efficiency, humanity, hygiene, and ordinary trade practice into a harmonious whole. While many of the lessons learned in the packing houses of America have been utilised in the scheme, it has not been possible to adopt all their labour-saving devices, as considerable attention had to be paid to local customs. The desire of every tenant to oversee his meat from the time it arrives on hoof until its despatch as sides after sale results in portions of the slaughter unit being periodically unoccupied, since the majority of tenants are not operating every day. In order to cope with the peak loads which occur at certain periods of the year, such as Christmas, the area and plant had to be sufficient for all tenants to make their maximum kill simultaneously. The total slaughter capacity, based on ten hours rating, is equal to 540 cattle, 450 calves, 3,700 sheep, and 1,000 pigs, the peak load or maximum daily kill covering 14 to 20 hours, being 1,000 cattle, 900 calves, 7,500 sheep, and 2,000 pigs.

The scheme is by Mr. T. Laurie Price, consulting engineer, and the architect is Mr. Albert D. Jenkins, F.S.I., land steward and surveyor to the Liverpool Corporation.

The main contractors were Messrs. William Hall and Son, Ltd., Liverpool, and the principal sub-contractors were as follows:—Francis Morton and Co., Ltd., steelwork; Adams Brothers, plastering and slating; James Stott and Son, Ltd., plumbing and painting; W. Thornton and Sons, Ltd., masonry; Williams and Watson, Ltd., glazing; Liverpool Artificial Stone Co., Ltd., artificial stone; Penmaenmawr and Trinidad Lake Asphalt Co., Ltd., asphalting; John Davies Insulating Co., Ltd., insulation; L. Sterne and Co., Ltd., refrigerating plant; Edgar Fitton and Co., Ltd., heating and hot water; Brightside Foundry and Engineering Co., Ltd., steam generating; James Stott and Son, Ltd., electric lighting and power; W. Wadsworth and Sons, Ltd., electric lifts; S. H. Heywood and Co., Ltd., dressing hoists; James and Fredk. Howard, Ltd., overhead rail equipment and abattoir accessories; W. H. Heywood and Co., Ltd., patent glazing; Rowe Bros. and Co., Ltd., Helliwell and Co., Ltd., Rea-Metal Casements, Ltd., metal windows; Rowse and Co., Ltd., W. J. Harries, Ltd., special floor surfaces; Jaconello, Ltd., special wall surfaces.

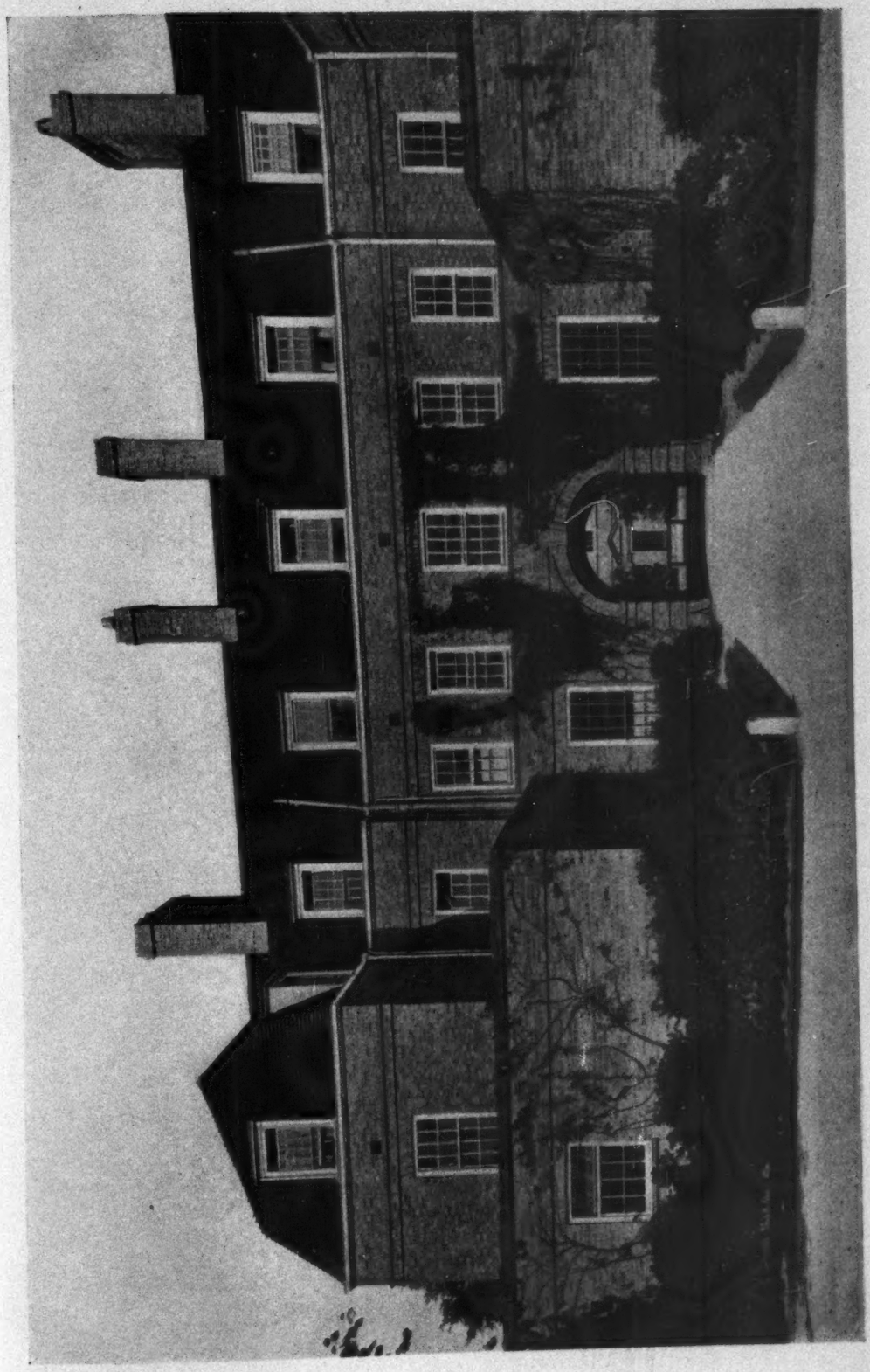
Civic Building in Northern France.

The sketch measured drawing which we illustrate on page 531 is one of a series of drawings of civic buildings in Northern France which survived the devastation of the War. It forms part of a portfolio of seventy examples, covering a period of about 300 years, and was made by Mr. W. H. Cowlishaw, who proposes at a later date to publish the series in complete form, probably by subscription. Other examples were given last week.

FACULTY OF SURVEYORS OF SCOTLAND

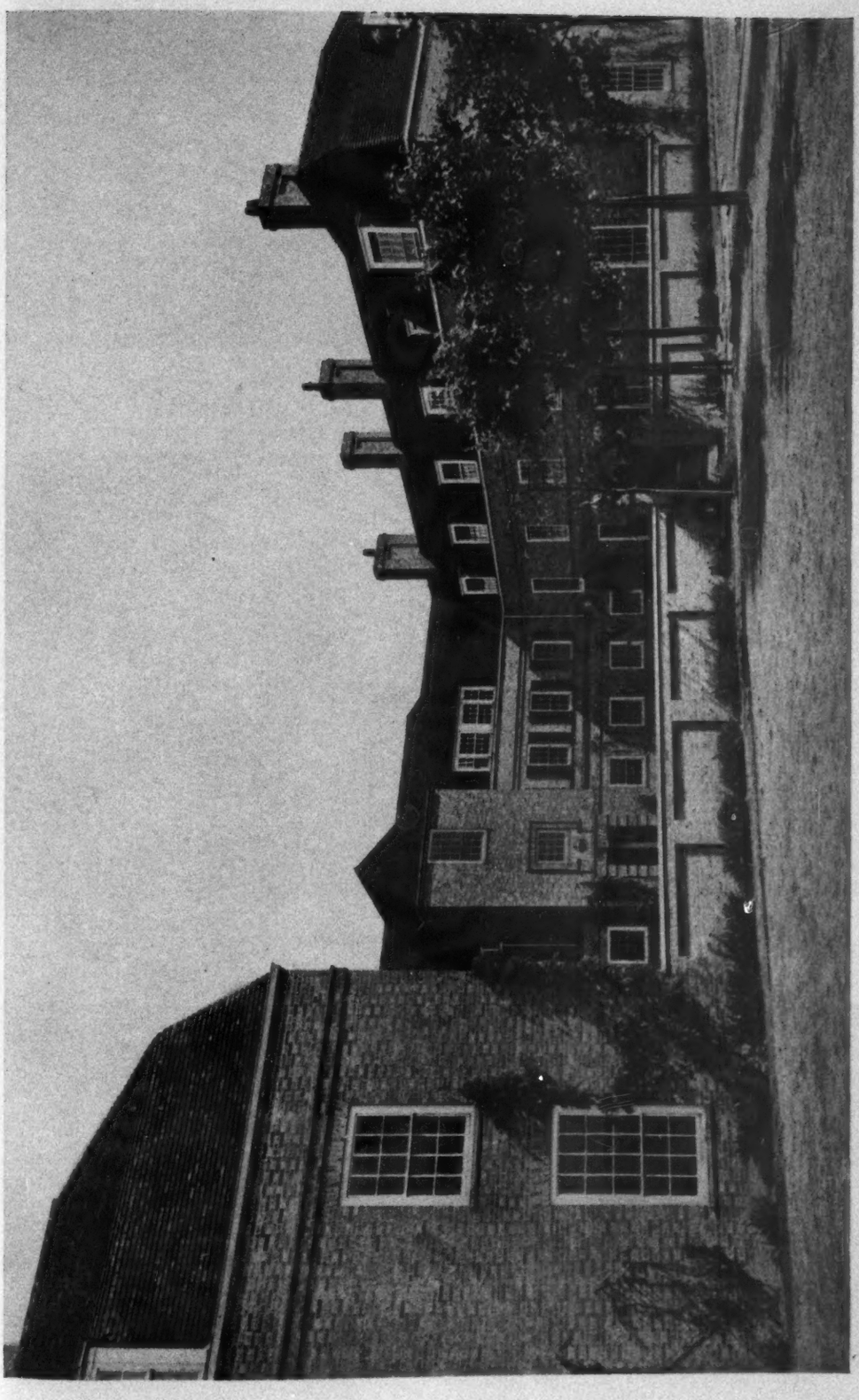
On a recent Thursday a party of Fellows of the West District Section of the Faculty of Surveyors of Scotland, to the number of twenty-four, accepted the invitation of Messrs. Baird and Stevenson to pay a visit to Locharbriggs Quarries, near Dumfries, with a view to inspecting the quarries and seeing at first hand the workings and machinery for stone cutting and hewing in operation. The party, presided over by Mr. Fred Smith, the vice-president of the Faculty, left Glasgow at 10.15 a.m. by motor-bus and proceeded to Dumfries, where they were met by Mr. Alexander Stevenson, of Messrs. Baird and Stevenson. Luncheon was served in a local restaurant, and the party then proceeded to the quarries, where a most interesting tour of the workings and the various stone-cutting departments was made.

The party afterwards proceeded to Closeburn Castle, the residence of Mr. Alexander Stevenson, where tea was served, and, at the conclusion of same, Mr. Fred Smith, on behalf of the Fellows of the West District Section of the Faculty, thanked Mr. Stevenson for asking them to visit the quarries, and for his hospitality not only to the Fellows of the West District Section of the Faculty, but to members of the Faculty's Students' Society, West District Section, who had visited the quarries recently under similar auspices.



National Institute of Agricultural Botany, Cambridge: Side Entry to Court.

Mr. P. Morley Horder, Architect.



National Institute of Agricultural Botany, Cambridge: View from Huntingdon Road.
Mr. P. Morley Horder, Architect.

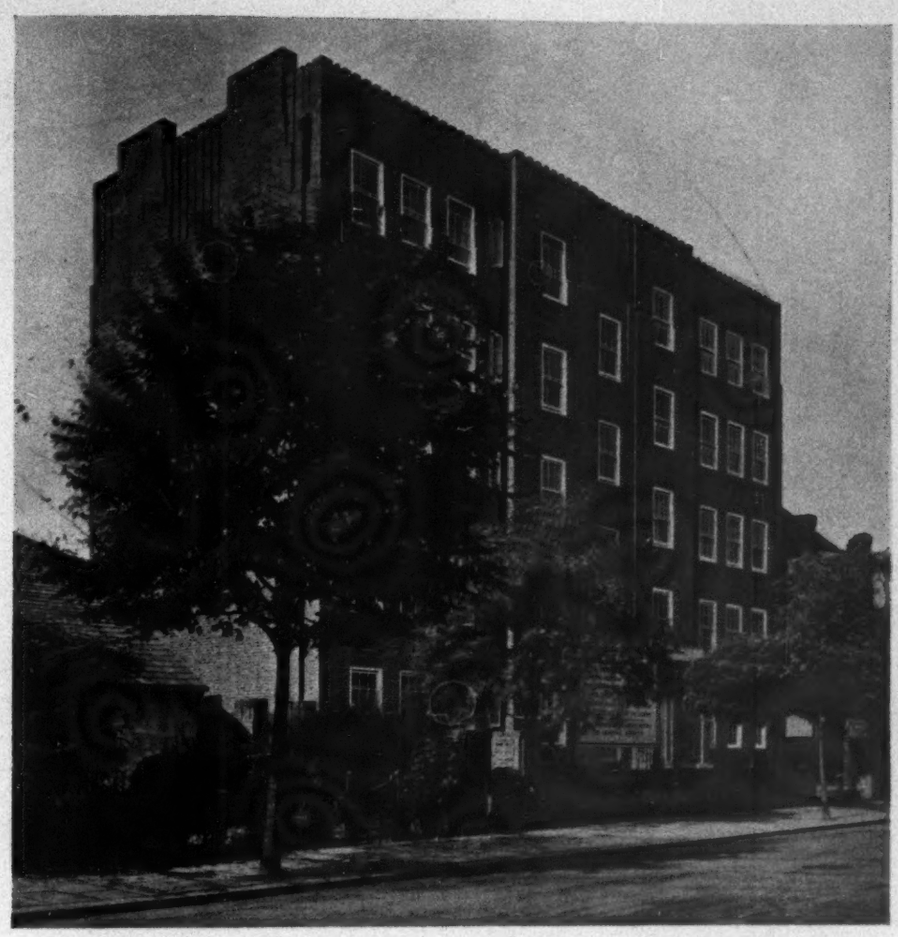
HOWES PLACE.

LIME AVENUE TO HOUSING SCHEME.

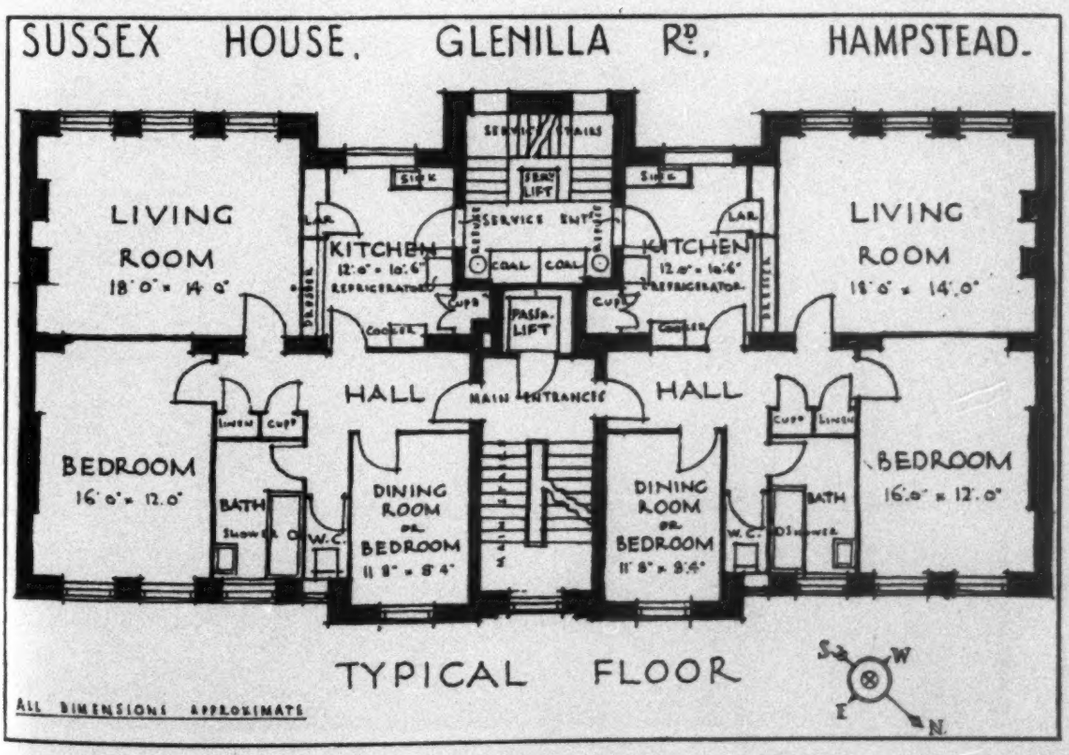
HOWES PLACE

National Institute of Agricultural Botany, Cambridge.

MR. P. MORLEY HORDER, Architect.

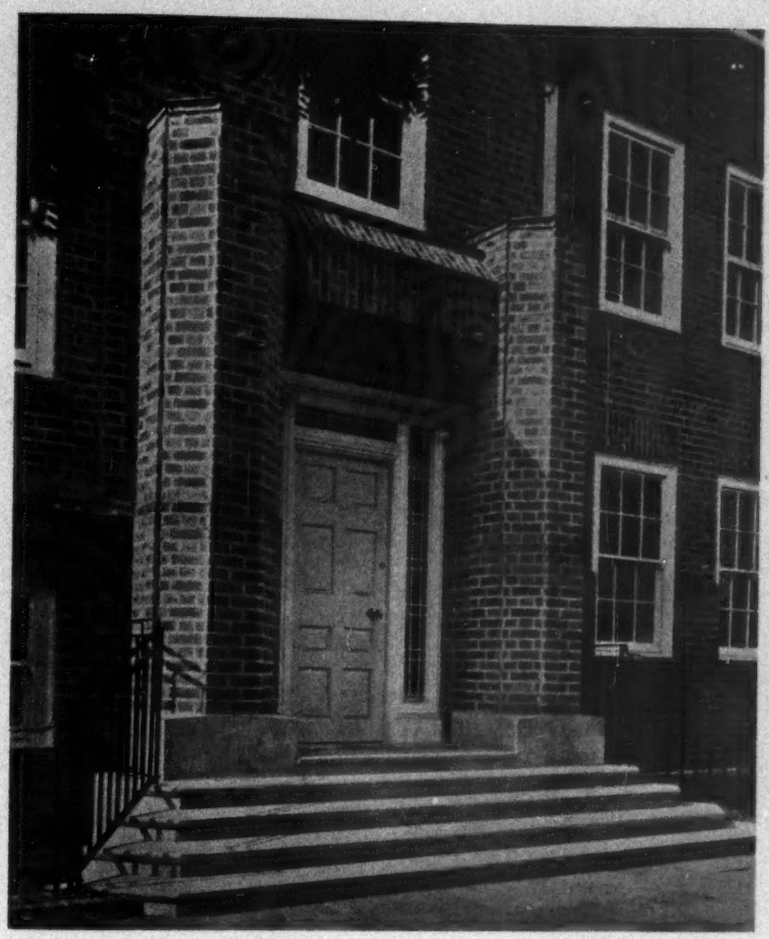


General View.



"Sussex House," Hampstead.

Mr. Howard D. Sugden, A.R.I.B.A., Architect.



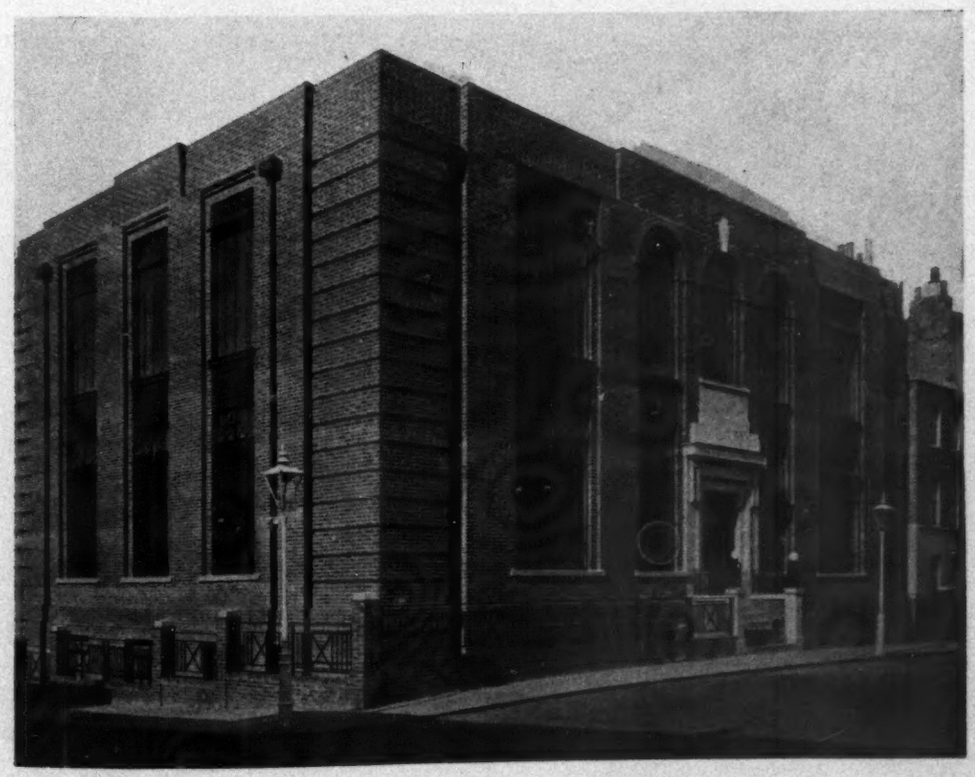
DETAIL OF ENTRANCE.

A BEDROOM.

"Sussex House," Hampstead.

MR. HOWARD D. SUGDEN, A.R.I.B.A., Architect.

FRONTAGE TO CECIL STREET.



FRONTAGE TO HAWLEY SQUARE.

Thanet School of Art, Margate.

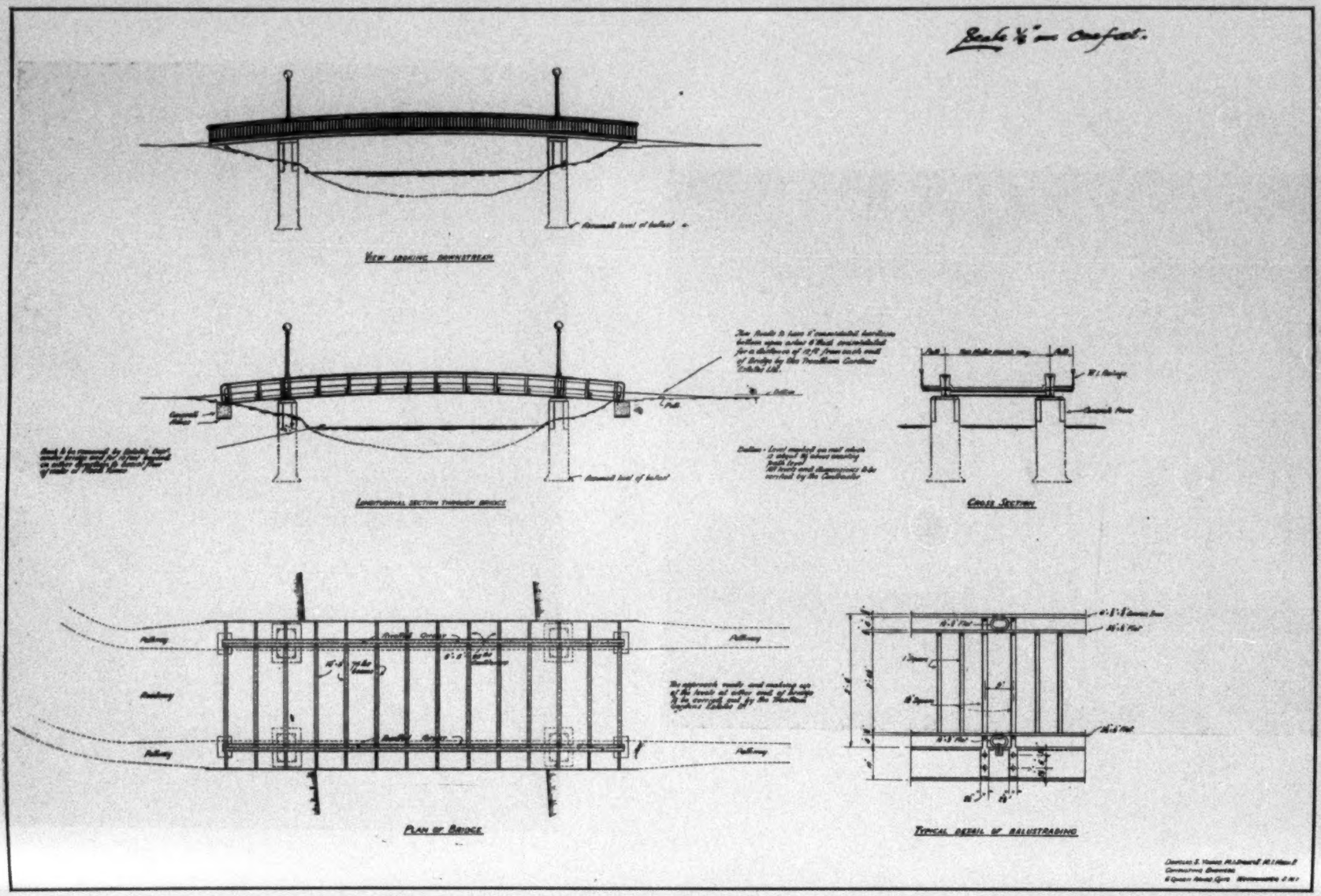
MR. W. H. ROBINSON, F.R.I.B.A., Architect.

EXHIBITION HALL.

"LIFE" ROOM.

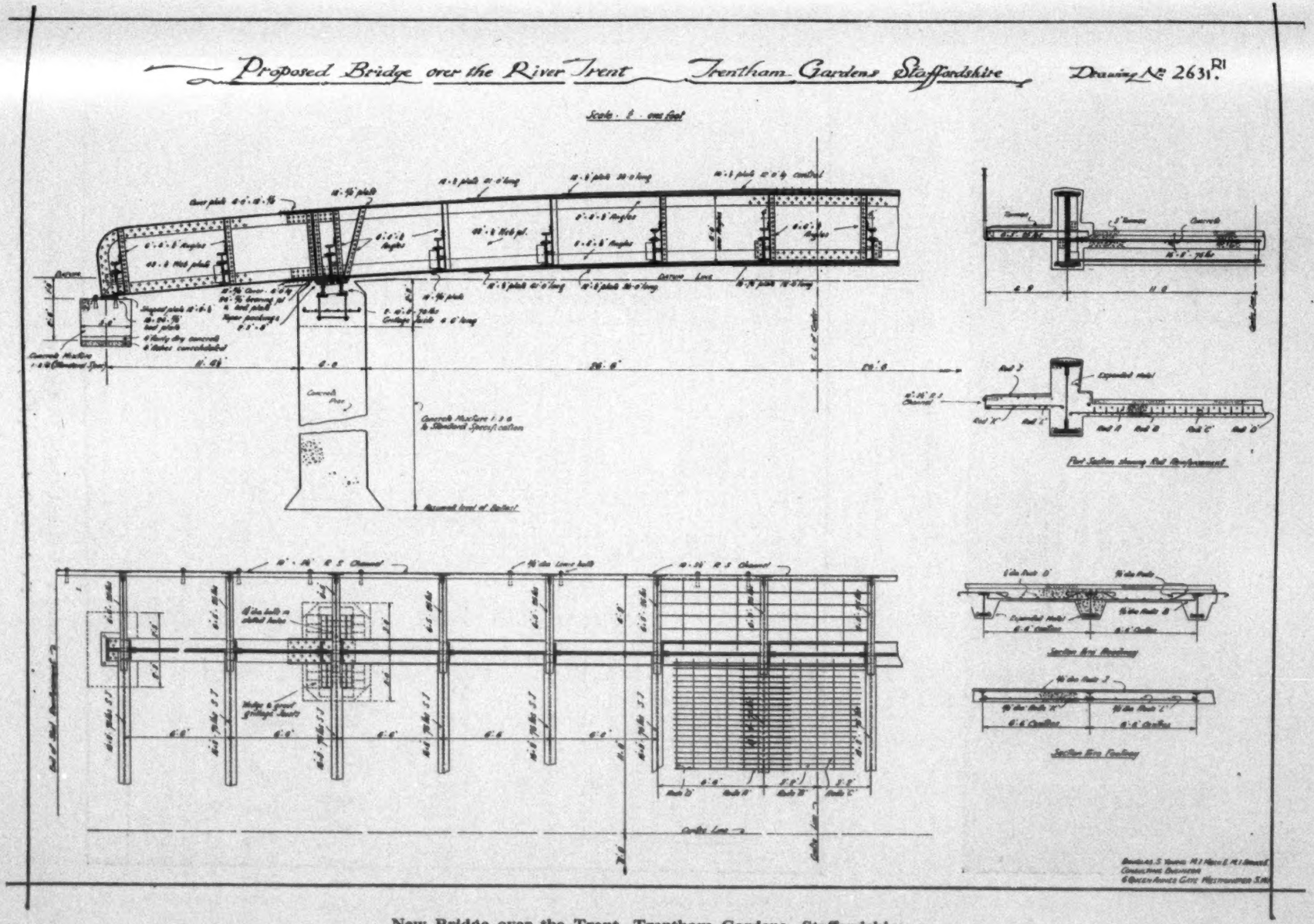
Thanet School of Art, Margate.

MR. W. H. ROBINSON, F.R.I.B.A., Architect.



New Bridge over the Trent, Trentham Gardens, Staffordshire.

Mr. Douglas S. Young, M.I.Struct.E., Engineer.


Proposed Bridge over the River Trent Trentham Gardens Staffordshire
Drawing No. 2631. R1
Scale: 1" = one foot
Part Section showing Rail Reinforcement
Douglas S. Young M.I.Struct.E. M.I.Mun.E.
Consulting Engineer
6 Queen Annes Gate Westminster S.W.1

New Bridge over the Trent, Trentham Gardens, Staffordshire.

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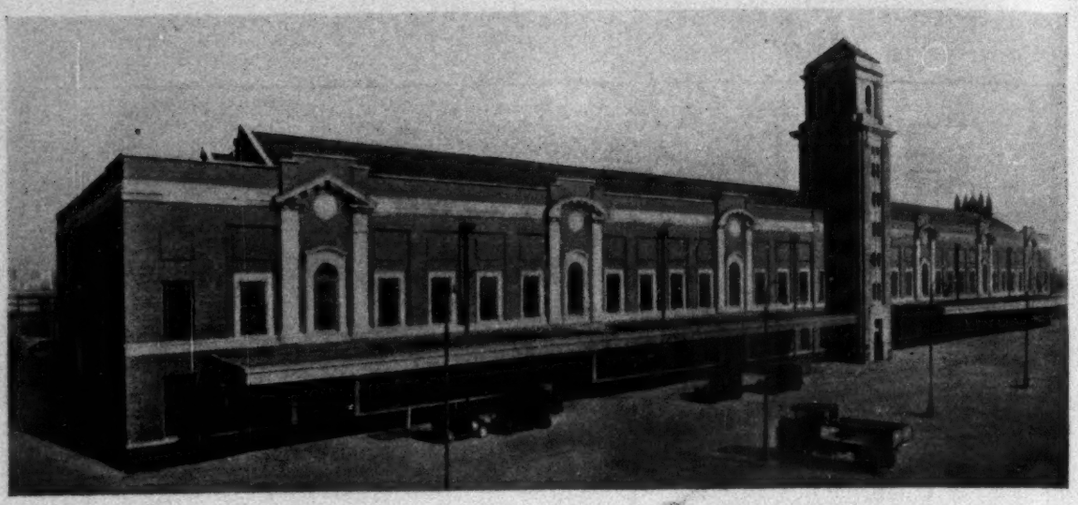
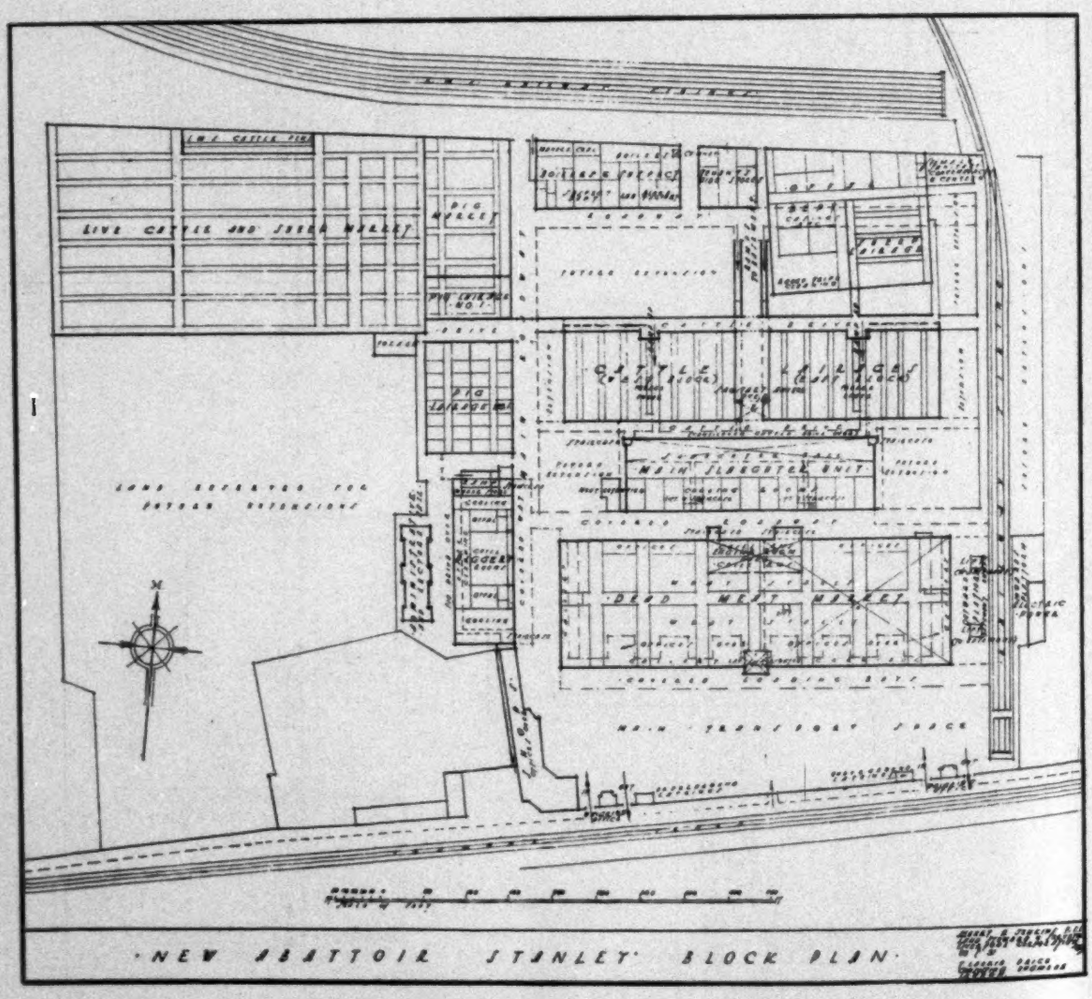


Dead Meat Market.



New Abattoir, Meat and Cattle Markets, Stanley, Liverpool.

Mr Albert D. Jenkins, F.S.I., Architect.

THE NEW FORM OF BUILDING CONTRACT:

EXPLAINED AND ANNOTATED—XVIII.

By W. T. CRESWELL, Barrister-at-Law, Hon. A.R.I.B.A., A.S.I.

THE CONDITIONS (*continued*).

Clause 22.—Determination of Contract by Employer.

The clause is in two parts; (*a*) deals with the default of the contractor, and (*b*) with the bankruptcy of the contractor. In respect to (*a*), default occurs where the contractor:—

(1) Without reasonable cause wholly suspends the work before completion.

(2) Fails to proceed with the works with reasonable diligence.

(3) Refuses, or to a substantial degree persistently neglects, after notice in writing from the architect, to remove defective work or improper materials.

Breach of Contract.

All these three defaults are breaches of the contract on the part of the contractor to perform his part of the contract, and this violation, in every instance, gives a right to the employer to obtain a remedy for the breach—usually in an action for damages.

Under the new form of building contract, it is provided that when there is default in any of the above three instances, and it continues for fourteen days after a written and registered notice to the contractor from the architect specifying the default, then the employer may determine the contract by notice. This notice must not be given "unreasonably or vexatiously," and is void if there is existing at the time breach of the contract on the part of the employer.

In London School Board *v.* Wall (1890) 2 H.B.C. (3rd Ed.), 165, Day, J., said that "default" did not include "mere oversights or casual omissions," but referred also to intentional breaches of contract.

Breach of contract does not, it must be remembered, always entitle the party *not* causing the breach to treat the whole contract at an end. The general rule, where there is default, is that the party not in default must ultimately be placed in the same position as he would have been if the contract had been performed by the party in default.

As to (*b*), bankruptcy of the contractor, on that event happening the employer may also determine the contract.

The Remedy Which is Provided.

Both where there is default, or bankruptcy, of the contractor, the employer may not only employ others to complete the contract works, but the right of entry on the site is reserved for the purpose; also the right to the use of materials, temporary buildings, and appliances, on the site. Furthermore, all further materials necessary to complete may be purchased.

As to the contractor, he can be called upon to assign, without further payment, the benefit of any contract for the supply of materials and for works intended for the contract, etc.; the employer agreeing to pay (if unpaid) the agreed price for such materials or works supplied, or executed, after the determination by the employer as above referred to. Furthermore, the contractor, when required, must remove from the site his temporary buildings, plant, appliances, and any materials. If he does not do so, the employer may remove and sell the same, giving credit to the contractor for any moneys obtained by the sale, less all costs incurred by the sale, etc.

The contractor cannot claim any further payment for work done until the cost of all these matters arising out of the determination of the contract have been met; and it may be, that there may obviously result out of all of this an amount due from the employer to the contractor, or an amount due from the contractor to the employer. In either instance this is recoverable as a debt, as the case may be. That is to say, the contractor only is entitled to a further payment upon the employer completing the contract work in the manner laid down; and then only after deduction has been made from moneys due to him for any additional expenses incurred by the employer in carrying out and completing the contract works. In this way, the employer is given security for recovery of damages and loss when he has sustained it by the determination of the contract by the contractor.

Generally.

The fact that a contractor has made an offer and signed a contract under an error of judgment does not exonerate him from performing it; neither is it a defence to plead that, in his opinion, the enterprise was unlawful; he must prove that it was in fact unlawful.

Even where a contractor finds the contract is impossible of execution, by the nature of it, he is still liable for breach, in that he has contracted to carry it out. His only remedy is an application to the Court to rescind the contract.

In Mertens *v.* Home Freeholds Co. (1921), K.B. 526, it was held that an employer is entitled, on breach by the contractor, to whatever it costs to complete the contract work substantially and *as originally intended*, and in a reasonable manner at the earliest moment he is able; less any amount which would have been due and payable to the contractor, under the contract, if he had completed the work punctually and according to contract. On the other hand, should the employer, in completing, make a saving on the contract price, the contractor is entitled to it. See Dussault and Pagean *v.* R. (1919), 58 S.C.R. 1.

In British Glanzstoff Manufacturing Co. *v.* General Accident and Fire Assurance Co. (1913), A.C. 143 H.L., where a building contractor became bankrupt and suspended the work and the employers stepped in and completed it (not, however, without an unavoidable delay, and six weeks beyond the date of completion), on the employers claiming from the contractors damages for delay it was held that the clause providing for liquidated damages in case of delay could only be applied when the contractors themselves completed the contract and did not apply where the control of the contract had passed out of their hands. The principle involved is: that no person can be held liable when he has no control.

NEW BRIDGE OVER THE TRENT

Drawings reproduced in this issue show a bridge which has recently been built over the River Trent in the Trentham Gardens, Staffordshire, to the order of the trustees of the late Duke of Sutherland. Owing to the recent developments upon the estate it became necessary to provide increased road and bridge facilities for the fleets of motor-coaches which bring the holiday folk from the neighbouring towns to spend a day in the beautiful park and gardens at Trentham.

The bridge is of the girder and double cantilever type and was designed by and erected under the supervision of Mr. Douglas S. Young, M.I.Struct.E., M.I.Mech.E., of 6, Queen Anne's Gate, Westminster. It is suitable for vehicles up to 10 tons in weight. The structure is 90 ft. long by 32 ft. wide, allowing for two rows of motor traffic and two footways, the latter cantilevering out from the main bridge girders.

The structure consists of two riveted steel web girders, each 4 ft. 4 in. deep by 18 in. wide, made to a radius of 383 ft. 10 in. spaced at 22 ft. centres. These rest upon sliding expansion plates which are secured to steel grillages, which in turn are anchored down to the concrete piers placed 57 ft. apart. New British standard beams 16 in. by 8 in.—75 lb. per foot run—at 6 ft. 4 in. centres throughout between the main girders carry the concrete roadway, which is reinforced with ⅝ in. diameter mild steel rods at 8 in. centres.

The footways on either side are supported by 6 in. by 5 in. 25 lb. R.S.J.s, which pass through the perforated webs of the main girders, and are connected by rivets to the top flanges of the 16 in. by 8 in. road beams. Continuous steel fascia channels, 10 ft. deep by 3½ in. wide, support the front edges of the concrete and provide a secure fixing for the wrought-iron balustrading which is bolted thereto.

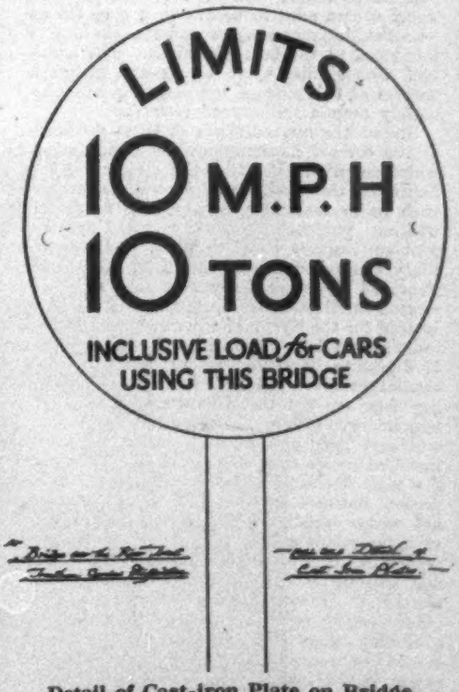
All the constructional steelwork is encased in concrete at no part less than 2 in. in thickness, and in addition the top surface of the main girder concrete casing is overlaid with asphalt ¾ in. thick as an additional weather protection.

The roadway and footways are surfaced with macadam composed principally of tarred Derbyshire limestone. The lettering on the cast-iron road signs, which is red upon a white enamelled background, is distinct, with the limits of speed and total weights of vehicles permitted to use the bridge clearly stated thereon.

The total cost of the bridge and the works in connection therewith proved very moderate for a structure of the kind, this being attributable to the design adopted and to the fact that practically all the labour and materials were obtained within a small radius.

The work was directed by Mr. John Austin, of Messrs. F. and H. F. Higgs, of London, who were the general contractors. The principal sub-contractors were:—Jesse Tildesley, Ltd., Darlaston, constructional steelwork and steel rod reinforcement; Edwin Richards, Wednesbury, wrought-iron balustrading, etc.; Burslem Building Materials Co., Burslem, Red Triangle cement; John Hadfield and Sons, Ltd., Sheffield, tarred Derbyshire limestone macadam to road and footways, also asphalting. The sand and crushed ballast was obtained from pits upon the estate.

Viewed from the aspect of the employment of British labour, it is estimated that the total would represent 17,500 man hours.



Detail of Cast-iron Plate on Bridge over the Trent, Staffordshire.

HEATING SECTION

DOMESTIC LABOUR-SAVING APPLIANCES

By J. R. TAYLOR.

In regard to mechanical equipment as applied to everyday matters, such as the routine business of the house, the advance made during the last thirty years, and more particularly during the post-War period, has been so very rapid as to be almost, if not quite, unprecedented. Probably the nearest comparable precedent would be the strides that were made towards better sanitation in the period 1875-1890. It is a little difficult to understand what it is that starts these great impulses that move people to make sudden, if not almost violent, changes in their habits and methods. In regard to household management, the impulses are not very difficult to understand, because they have all tended to reduce domestic staffs and to the substitution of mechanical appliances for manual labour. Now that the pendulum has reached full swing, it were perhaps better to confine ourselves to the problems that present themselves to-day. From the architect's point of view, the problem is many-sided. Not only has he to resolve the difficulty of the essential and non-essential, the minimum of such fittings to be installed as compared with all those that he might desire to use were he building regardless of expense, but he must be sufficiently well up in his subject to be able to house them to the best advantage, and to defend his choice.

The Kitchen Fittings.

Before we can decide on the fittings for the kitchen it is necessary to make up our minds whether it is really a kitchen or a living-room, or a kitchenette we are dealing with. This sometimes presents a problem that requires delicate handling, because it involves the putting of some plain questions if the correct solution is to be arrived at. It is necessary to know, for instance, whether whole-time or only part-time service will be engaged; whether breakfast or any other meal will be taken in the kitchen; whether the whole of the laundry work will be sent out or whether the lighter articles will be washed at home. All of these matters and many others need to be known if such things as sinks, boilers, cookers and the like are to be placed to the best advantage. The architect who studies these things and makes a success of this side of his planning will ultimately reap a well-earned reward.

One of the most difficult of these problems is the correct handling of the domestic hot water supplies. If either the services of the house or the preferences of the owner are such as to demand a coal-burning range for cooking purposes, generally speaking the problem resolves itself to what, if any, auxiliary method of raising heat shall be applied. Provided one were really sure that it would receive intelligent handling, there is much to be said for the choice of what is known as the independent boiler fed with coke but capable of digesting household refuse. But if these appliances are not handled with understanding they are apt to be irresponsive and disappointing. Gas or oil under automatic control give good results, and electricity, when installed under competent guidance, is one of the most docile of servants. Where the most urgent business is that of giving abundant hot water supplies for early morning baths, an independent geyser, consuming gas or electricity, is, as a rule, equal to any emergency, and as long as its speed of response is not abused it is not unduly expensive. Provided always, as the lawyers say, that there is a kitchen range with a back-boiler, the bath should be connected with it, even when a geyser is also installed in addition.

The fact that, though writing under the heading of "Kitchen Fittings," I have straightway wandered off into the bathroom, is accounted for when it is remembered that the whole business of fitting up the house is full of similar complexities, and no one point can be isolated and dealt with regardless of all others. The whole matter resolves itself into compromise, dictated by the order in which precedence is given to one or another service point as related to the individual preferences or requirements of the client. But the following hint may be of some service to an architect so pressed by economical circumstances that in the first instance he must content himself with a cylinder fed from a back boiler. Let him specify one or even two additional drillings capable of receiving that electrical appliance sometimes known as a "booster." This is a rocket-like apparatus that introduces electrical heat to the interior of the cylinder at will, and any good general merchant dealing with building material supplies on the plumbing side will, on request, supply him with full particulars. The drillings may for the time being be plugged off until such occasion arises that they may be brought into use at but little more cost than had they been installed in the first instance.

Some time ago the columns of *The Builder* were enlivened by a brisk correspondence on the subject of unwanted advertising matter coming through the post. My own view is that no architect or builder desirous of keeping abreast of the times can afford to throw away this matter unread. At all events, when considering the fittings for a house, it is better to court rather than to repulse the manufacturers' suggestions. The selection should be made at a very early stage, so that proper consideration can be given to housing them before the plans are so far advanced as to make alterations painful, if not very difficult. The choice offered is an extraordinarily wide one, and there is hardly any domestic service that cannot at least be accelerated by means of some appliance or other. The architect may not at the time be able to include for all of them, and, perhaps, hardly any of them in his general estimate, but he will at least see that to provide only one plugging-in point is altogether insufficient for the kitchen of a modern house. It is cheaper to instal sufficient plugs to meet all reasonable requirements at the outset than to be thrown back on to drawing electricity for power purposes off the lighting fittings. Some companies make such a very much lower charge for current consumed as power and heat as compared with that for light as to make the outlay involved in carrying dual supplies to every room in the house well worth while. Even the small pantry or larder should not be without its plug point, so that a refrigerator or other appliance may be fitted if desired. In passing, it may be mentioned that the companies supplying both gas and/or electricity are nearly always desirous of balancing their night and day loads because this makes for economical production. As a consequence, the majority of them have highly trained men on their staff whose advice is well worth having, and this advice is placed freely at the disposal of either architect or builder in regard to technical considerations governing choice and installation of fittings.

Wireless.

It is high time that the architect turned his attention to the subject of wireless, which is at present doing more to disfigure our villages and suburbs than all the hoardings, pink roofs, and "bungaloids" put together. Despite the great advance made in cabinet sets capable of giving good results without aerials, almost all enthusiasts desire the still better production that is believed to follow when they are connected up to a length of external overhead wire. As a result, all sorts of contrivances, nearly all of them ugly and ill fixed, are pressed into service. It is called a wireless system though it probably uses up more wire than the telephone service, and as fast as the telephone and telegraph wires disappear underground, they are replaced by others having no pretence to orderliness. When the kitchen is regarded as a living room, many people think it not properly fitted or furnished unless it contains a wireless set of some sort, and, consequently, as a subject, it falls within the scope of this article. With a little forethought, the architect designing a new house might so instal an aerial as to be comparatively inoffensive, and the good example thus set would, I hope, soon make its influence felt.

HOUSE FIRES

THEIR CONSTRUCTION, WORKING AND TESTING.

By C. CAMPBELL.

One of the essentials of a house is the assurance that all fires will function satisfactorily. What is commonly termed "blow-downs" will occur even with the best built fireplaces despite the assistance gained in restraining these by special chimney-can and flue arrangements. Certain districts are blamed for not having the necessary wind, or are stated to be too low lying to get access to a proper draught, etc., but this is scarcely to be accepted as a reasonable excuse in view of the scientific principles involved. Probably the other most frequent trouble encountered is the breaking or loosening of the brickwork from the mortar. In the first case, the difficulty of ready kindling is one of the simplest means of ascertaining if the flues do not respond to the needs of the fire. This largely rests on the ratio of grate area to that of flue and chimney stack, but there are many finer points.

In the construction of flues and chimneys, the materials employed should be of as high specific gravity as possible. What is known as the modulus of heat conductivity should be as low as permissible. Then the capacity for absorption of moisture and the permeability by air and gas should be low. These points in the first instance all contribute to the production of a good draught in a general way.

As regards the refractories used, these should resist the action of heat to the highest degree compatible with moderate cost. Influences of the weather such as heat and cold should not make any marked change, but it should be noted that frost will cause siliceous bricks to crack. This is principally due to the granules of contained clay having a capacity of absorption different from that of silica. The flues should be resistant to the chemical actions which develop in the passing of fire and acid gases. The latter attack all unprotected chimney materials and are especially severe on concrete.

Whilst in the ordinary way hardness is generally expected of the brickwork, a certain degree of tenacity is also required. Ordinary red bricks made from loam and sand although used for flues and chimneys, are not really suitable as they are generally very porous. Concrete which has been employed in the flues of the poorer class dwelling houses is often unsatisfactory and disrupts under the influence of fire gases, more particularly when these are acidic. A better material may be substituted in a second grade fireclay suitably strengthened.

Mortars Employed.

In building the fire grate, the joints should not be more than ¼ in. thick. The mortars employed vary widely in character as will

be gathered from the following mixtures:—sand and clay (mud), lime and sand; lime, sand and mud; cement, sand and plastic fireclay; also fireclay with admixtures of grog. Attention should be specially paid to the water used since it is expected to be free from mineral and alkali salts. The latter make the mortar more readily fusible and are always undesirable. The quantity of water varies very widely, from 8 to 22 per cent. in weight of the sum of the materials used in the mortar, and is added as usual to make the mixture pasty.

The sand should be sharp and if possible crystalline, with the grains of heterogenous form and size. It should be noted that lime mortar is porous, heat conducting, and permeable to water and gases, and since it contracts on heating is not at all adapted to any structures exposed to even a small degree of heat. Lime, cement, sand, mortar is of a similar nature, and as with concrete is adversely affected by fire gases which are of acidic character.

The actual building of house fires does not call for any special skill so long as the builder is following the details of some approved design, and the success of the working of the fire itself more rests on the flue and the manner in which the latter enters the chimney proper. One of the arts in this, which more belongs to the work of the furnace builder, is the avoidance of sharp or right-angled bends, which tend to a choking or stifling action on the flow of the gases. Although more work is involved, it is always much better to use a rounded bend. This ensures a direct flow, and offers little or no resistance to the passage of the gas. The theory from which this is taken is the dynamics of liquids, which has also of late years been accepted in the transportation of steam in complex machinery. The technology of furnace gases is probably too remote to be of direct use to the practical builder, but in designing a number of similar houses in a district which is known to have badly working fires, a section of this work is of great importance. In the first instance, one house may be taken as the standard, and experiments conducted on the fireplace and flue, both as regards altered dimensions and improved styles. The value of these changes can only be properly appreciated if the results from them are obtained in a recognised scientific manner. The instruments employed for these are quite simple.

Testing.

In the first place, the flow of gases is ascertained by means of a Pitot tube. This test is made on the flue before and after the fire under examination is kindled. The difference in the rate of flow is plotted on a graph, so that suitable comparisons may be made. As regards a consistent fire, this does not matter in this test so long as a good temperature is maintained. The temperature at different sections of the flue is tested by a special "blue glass" thermometer. The use of a pyrometer is not necessary, as the temperatures attained are never so high as to warrant the use of one. It will always be observed that the coal fire transfers most of the volume of its heat to the flue, and not to the rooms of the house. (This point has long been emphasised by makers of electric and gas fires, but coal fires still appear to be most popular.) The section of the flue which is hottest will be found to vary, sometimes by a considerable margin. This is partly due to the draught, but also to the nature of the coal used, some coals having a longer flame than others. By using the same coal on days having approximately the same humidity, wind and temperature, the most suitable grate area is first ascertained definitely. Variations of the conditions are next noted, and their effect on the temperature in the flue and rate of flow of the fire gases.

The next point is to test the composition of the gases, which, however, is only done in extreme cases. A portion of the gases from the flue is withdrawn by means of a copper tube connected to an aspirator bottle. The gas in the bottle is transferred to an Orsatt gas-testing apparatus, and the proportions of carbon dioxide, oxygen, carbon monoxide and nitrogen ascertained. These figures show the completeness or otherwise of the combustion, and the test is sometimes left in the hands of some local works chemist to undertake and report upon.

From the foregoing tests it will be seen that little is left to doubt or chance, since the fire is burning with known coal, and the atmospheric conditions, flue temperature and flow of gases, besides their composition, are all under close scrutiny.

MODERN DEVELOPMENTS IN THE USE OF GAS

BY A SPECIAL CORRESPONDENT.

THE trend of architecture throughout the ages has been governed by the materials available. So, too, with fuels. Once a wood fire was built in the middle of the hut floor and much of the smoke managed to find its way out of a hole in the roof. Next came huge fireplaces to accommodate unwieldy logs. The flues were big enough for a man to climb up. As time went on, coal took the place of logs and, though it was dirtier, it was more compact and had the effect of diminishing the size of grates and flues. Then came gas, which could be burnt in a neat, compact appliance which would still allow adequate ventilation of the room. For large buildings central heating by means of pipes or radiators fed by a boiler fired with coal or coke became popular. In more recent years gas, in many instances, replaced solid fuel for central heating, because of its flexibility, the compactness of the apparatus, and the fact that it removed the necessity for fuel storage space.

The perfecting of gas fires and gas-fired central heating hot-water systems has now made it possible for architects and builders to plan their heating systems in a more scientific manner, as will be explained later. The piping for the fires as well as for the hot water systems can be installed on the premises while those premises are in course of construction—obviously a much cheaper and more satisfactory method than if they were put in after the building had been completed and decorations had been finished. Gas fires can now be obtained in such a convenient variety of forms that they become part of an untrammelled decorative scheme. Water heating panels can be suitably built in instead of being unsightly cast-iron afterthoughts.

The pre-war gas fire was undoubtedly a great advance on the older methods of heating; but since then the gas fire has been improved beyond all recognition, both in general efficiency and external design. The design of gas fires to harmonise with every type of decoration and to suit every existing form of fireplace has been brought to a fine art. But in modern houses gas fires and surrounds which were designed by the architect when he designed the room are beginning to appear.

It is much easier to design a room when it is known that there is a gas fire which can be put in almost any kind of surround at any convenient height from the floor than to design a room with a coal fire, a large chimney breast and a large flue. Valuable space can be saved by using cast concrete "economy" flue blocks built into the thickness of the wall and by doing away with fenders, grates and their clumsy paraphernalia.

There are now available a number of gas fires of very simple design which are suitable for building into modern surrounds of all kinds. One such is illustrated in its setting. It may be finished in armoured brass or copper, pewter or stainless steel. For cheaper work "builder's sets" may be used. These consist of a combined gas fire, mantel register in cast-iron or tiled or wood finish, and hearth in cast-iron or tile finish. They are very widely used in municipal housing schemes. With the present-day tendency towards small manageable flats and houses, this feature of compactness is no mean consideration and, unlike most improvements, it is accompanied by a decrease in building costs on account of the reduction of labour and building materials, as compared with those for a coal fire, flue and chimney breast.

Although "economy" flues present a ready means of lowering building costs and increasing floor space, just as much care should be exercised in their design and construction as is devoted to coal fire flues. Especial care must be taken to prevent their becoming partially blocked during building. The same natural laws apply to gas fire flues as those on which the by-laws governing the construction of coal fire flues are based. The economy lies in the fact that gas is a clean-burning fuel, producing no soot and a relatively small volume of products of combustion, and therefore requires a smaller flue. Moreover, the chimney breast and stack may generally

A "Panella" fire in a simple, modern setting.

be dispensed with. But, although the cavity of a hollow wall may be used, a suitable shaft must in every case be constructed in it.

The following table gives the minimum flue areas recommended:—

Number of radiants.	Size of firefront.	Minimum flue area recommended.	Size of flue suggested. Brickwork.	Concrete blocks.
5	8 in.	20 sq. in.	4½ in. × 4½ in.	2½ in. × 9 in.
6	9 „	20 „	4½ in. × 4½ in.	2½ in. × 9 in.
7	10 „	24 „	4½ in. × 9 in.	2½ in. × 12 in.
8	11 „	24 „	4½ in. × 9 in.	2½ in. × 12 in.
9	12½ „	30 „	4½ in. × 9 in.	2½ in. × 12 in.
10	14 „	36 „	4½ in. × 9 in.	2½ in. × 15 in.

The last is capable of heating a room having a floor area of about 225 square feet. For larger rooms than this the usual 9 in. by 9 in. flue would probably be necessary.

Each gas fire should have its own independent flue, and throughout its entire length this flue should not be connected with, or run into, another flue, but should discharge into the open air above the main ridge of the roof, in order that there may be no danger of back-draught into the room; moreover, the gas fire should not discharge immediately into the flue shaft, but an opening rather larger than the full width of the fire should be gradually gathered over, in the same manner as would be done in the case of a coal fire, so as to provide a chamber above the gas fire outlet, corresponding with the smoke chamber which is always constructed above a coal fire. All flues or shafts from built-in gas fires must discharge into the outer air at or above the roof level, and have four-way ventilation. Those terminating at the roof level should discharge into special ridge tiles or terminals.

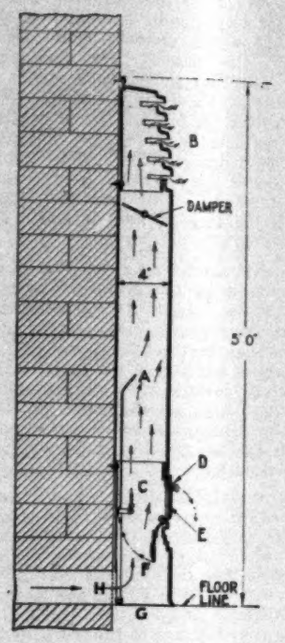
The use of gas fires is not limited to private houses. They are eminently suited to large buildings and especially to hospitals. The King George V. Hospital at Ilford, which was recently opened by the King, has 35 gas fires installed in it, as well as a large number of gas-cooking appliances.

From the point of view of health and comfort, the gas fire, with its high radiant efficiency and the constant ventilating action of its flue, has advantages. Nevertheless, the economy and convenience of hot-water central heating have resulted in its increasing use, especially in large buildings. Moreover, a number of modern systems use cast-iron panels or pipe systems imbedded in plaster instead of the more usual convectors or so-called "radiators." The former have the great advantage that when they are built into the walls or ceiling they give out most of their heat as radiant heat and are therefore much more healthy than "radiators," which act as air heaters, and tend to make the atmosphere stuffy.

But whether the central heating system uses convectors or radiating panels it must be easily controllable and preferably automatically controlled. Gas firing can be very simply controlled by a thermostat, which may either be placed in one of the rooms to be heated so that the temperature of the room is kept constant, or be placed in the water system so that the temperature of the water is maintained constant. This ensures that the rooms shall not become overheated nor the decoration damaged. Moreover, where space is valuable the almost negligible space needed by gas boilers means a very real saving.

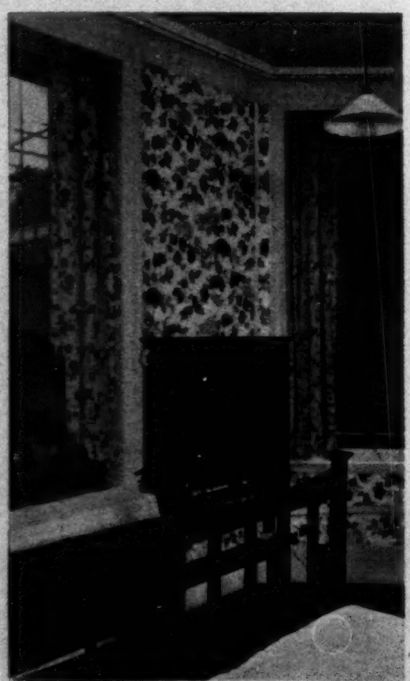
As an example of the small space occupied by a gas-boiler installation, the case of a set of eighteen one-room service flats may be cited. Situated as it is in the heart of the West End of London, space is very scarce, and the only position available is a narrow passage-way, once used as an emergency fire exit. In this has been installed a Potterton boiler for the central heating of the building, and a set of four Potterton boilers for supplying hot water to basins in each room and the bathrooms.

The central heating boiler has an effective transmission of 159,600 B.Th.U's per hour and a maximum gas consumption of about two therms per hour. It is capable of heating 1,200 square feet of radiation. The daily hot-water requirements dealt with by the four smaller units are estimated at 300 gallons for baths, 50 gallons for lavatory basins and 20 gallons for kitchen use. The maximum gas consumption is about 1½ therms per hour, which is automatically reduced by thermostat when the demand drops. A novel feature is the fact that much of the piping for the central heating system had to be placed outside the building. It is, of course, heavily lagged.



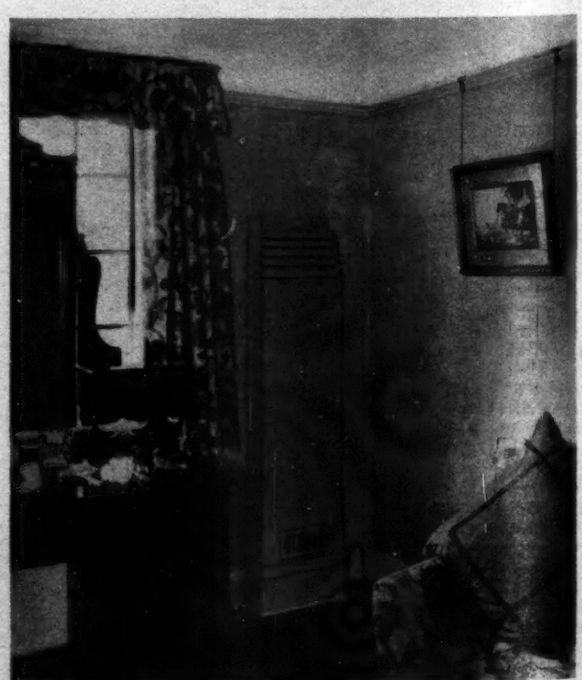
The "Indusa" Heater: Sectional View.

[Fresh air is induced at the bottom of the heater, either through the floor G or the wall H, is heated by the burners C and passes into the room through the louvres B. A is a deflector fitted to prevent overheating of the back and to increase the efficiency of the front as a low temperature radiator. D is the lighting door kept shut by a counterweight F. E is a translucent "Bakelite" panel fitted in the door to give it a pleasing appearance when the burners are alight.]



One-room service flat with gas installation.

[NOTE.—Perforated panel has been removed to show radiator, which is normally hidden.]



An "Indusa" heater, fitted in corner of small bedroom.

Radiators are fitted on the staircase, in the passages and in each room. One important result of the installation has been a reduction of the staff.

Another interesting installation is that carried out for Dame Katherine Furze, at 5, Cheyne Place, S.W.1. Ten hot water radiators giving about 390 square feet of radiation are used with a gas-fired boiler. For hot water there is a gas boiler. The old coke-fired boiler is now used as an incinerator. The architect in this case was Mr. W. R. Brinton.

For cases where no flue is available and yet ventilation is required, a simple and efficient heater has been lately devised which is proving economical and satisfactory. Known as the "Indusa" heater, it consists of a tall cast-iron panel louvred at the top and fitted with two flat flame burners at the base. It is fitted so that its base is in communication with the outer air either through an air brick or a pipe laid between the joists under the floor boards. It depends for its action on a chimney pull effect, drawing in air from outside at the rate of about 1,000 cubic feet an hour, warming it and discharging it into the room. At the same time the cast-iron panel is heated up and becomes a low-temperature radiator of large area. Both radiant heat and convected heat are therefore supplied and there is a strong ventilating action. The products of combustion are so much diluted by the incoming fresh air that they are unnoticeable and harmless and yet no heat is lost, as it would be in the case of an ordinary flue.

The gas consumption is very small—about 8 cubic feet an hour with 500 B.Th.U. gas—and ¼ in. (or even, where the pipes would be visible and unsightly, ⅛ in.) supply is all that is necessary. Thermostatic control may easily be fitted to one or any number of units. Each is also fitted with a damper in order that the pull may be diminished if necessary when the wind is strong. With the damper open and no wind, the maximum surface temperature is 140 deg. F. and the average 110 deg. F. With the damper closed these rise to 160 deg. F. and 150 deg. F. respectively.

The "Indusa" heater has a distinctly modern appearance and is sent out with only a priming coat so that it can be finished to tone with the decorations. A luminous panel at the bottom gives it a cheerful appearance. The appliance is suitable for small rooms as well as large. The illustration shows a small bedroom in a flat, but one of the first installations to be put in was one of thirty units at a modiste's showrooms in the West End of London. Gas fires are an old idea but it is only lately that architects, designers and scientists have combined to make them efficient *and* beautiful. Once houses were built to have coal fires, and gas fires were added. Now houses are often built to have gas fires and the fires and settings are designed to match.

THE GAS CONFERENCE AT EXETER

The annual general meeting and conference of the British Commercial Gas Association was held at Exeter from Monday to Wednesday, under the presidency of Mr. John E. Daw, J.P., chairman of the Exeter Gaslight and Coke Co.

Delegates were received on Monday afternoon by the Mayor and Mayoress, afterwards being entertained to tea in the Guildhall. Following a reception by the President at the Civic Hall, Sir Banister Fletcher, PP.R.I.B.A., lectured on "Architecture as a Democratic Art." Architecture, said the speaker, provided a visual history of the shifting fancies and ideals of mankind. The comparison between a Roman amphitheatre and a Gothic cathedral, between a Renaissance palace and an American skyscraper of steel and concrete, revealed as nothing else could do a revolution in the social habits of Western man. All successful architecture, whether it took the form of a mediæval fortress or a modern railway station, was an expression of the ideas and aspirations of its time and country for everyone to see. The real worth of any architect's work depended on the success of his attempts to meet the fresh needs and difficulties of his time. This was more than ever true to-day, when social habits were changing with astonishing rapidity. The most obvious limitation placed upon the modern architect, in this age of dubious peace and indubitable poverty, was the need for rigid economy, and not economy merely in respect of building costs and material, though that was of the first importance. The architect of to-day, whether he used the older materials or experimented with houses and streets of ferro-concrete or cement, had to plan those houses so that they could be run at the lowest possible expense.

In this connection there were two factors which had constantly to be borne in mind. The first was the scarcity-value of domestic servants, which had driven some educated and well-to-do women to dispense with servants altogether and do their housework themselves. The second factor, and one which he (the speaker) would emphasise more particularly, was the aspiration of the working-classes towards a better standard of living. Since the War we had witnessed a certain levelling—both upwards and downwards—in social conditions, with which no one would quarrel. The woman in the small house demanded a healthier home, a prettier home, a home set among pleasant surroundings. Above all, like her wealthier sister, she demanded that her house should be so planned that domestic drudgery was cut down to the irreducible minimum.

Now the secret of labour-saving, from the architect's point of view, was to be found, not in the provision of so-called labour-saving devices, but in the elimination of the need for work. That was a vital problem to be considered in the scheming of a modern house, large or small. If the rooms of a house were not intelligently planned in relation to each other and to the stairs and landings, half the advantage of modern inventions would be lost. Next in importance to sensible room-planning, the main factors which had lightened the labours of the housewife were up-to-date heating and cooking arrangements and the effective solution of the hot-water problem.

As regarded the reconditioning of old houses, the problem in this case was a double one; to modernise the house at the lowest cost and without affecting the harmony of existing appointments. It involved, therefore, the most careful planning to keep down the expense of plumbing and fitting, and co-operation between the architect and the gas undertaking. As regarded the water-heating, each old house, of course, must receive individual treatment, for, as all dated from a period before the age of standardisation and mass production, each presented a special and individual problem. But, in his experience, the installation of a coke boiler, which took up little space in a kitchen, and could be used for the cremation of refuse, was very often the most satisfactory solution to the problem of water-heating, provided labour was available. In the first place, the coke-boiler provided constant hot water for bathrooms. In the larger houses of to-day, it was the custom to fit lavatory basins in every bedroom. That might not always be convenient in an old house; and plumbing costs might be kept down if a well fitted bathroom was provided on each floor instead of a basin in each room. A further advantage of the coke boiler was that it might serve a radiator for warming some bleak corner of an old house, though it was, of course, not economical to take off several radiators from the domestic supply boiler. Where complete central heating by radiators was desired two separate coke boilers were more economical.

The advantages of the gas fire as a factor in labour-saving were obvious enough: its freedom from smoke and dirt, and the elimination of the need for constant attention, for storing and drawing coals, and for clearing ashes. There were now fires designed by architects in co-operation with gas specialists which would fit in harmoniously with any period of architecture, old or new, without pretending to be "period" and yet without disharmony in a period room.

In the case of new houses, in the piping much depended on the co-operation of gas undertakings and architects. In the old days, when gas was used mainly for lighting it was a simple matter for the architect to refer to a quantities handbook. But gas had been put to so many other uses in modern houses that there was real necessity for co-operation, especially in carcassing, which should *begin on the plans*. It was too late for efficiency when walls were up, or even when foundations were laid. And service pipes must be not only rightly placed, but sufficient in capacity. Accessibility was the golden rule in gas carcassing. If long lengths of barrel were used for the rising pipe, connectors should be left in accessible positions to enable a fitter readily to make disconnection if this became necessary. Floor traps should be made over each fire and pendant point. Space-saving and labour-saving were twin considerations in the fitting of a modern kitchen, and the position of each domestic appliance should be well thought out when the piping system was planned.

In dealing with the reconditioning of old houses he had touched, said the speaker, on the fitting of a coke boiler. This would provide satisfactorily and economically for all hot water needs, but it could only be used in houses where labour for stoking was available. As an alternative a quick-acting gas water heater needed no stoking and was not more costly when the saving in labour and storage space for fuel was taken into account. The combined gas boiler and storage system cut out the heat losses due to radiation, which often occurred when the boiler was fixed in one part of the house and connections were taken from it to a tank or cylinder fixed elsewhere. When there was a considerable distance between the circulator and the hot water storage tank it was always advisable to lag not only the flow and return pipes, but also the exposed parts of the hot water tank. A third alternative was the multipoint instantaneous gas-water heater, which supplied hot water by a one-pipe system throughout the house. Its apparatus worked automatically, and directly any hot water tap in the house was turned on, the gas in the water heater went up to its full extent and quickly heated the water.

There was one further aspect in which the application of modern fuel to the new housing estates was of intense interest to every architect. The noxious smoke from coal fires damaged permanent structures of every kind. It corroded cast-iron fittings such as rainwater pipes, gutters and soil pipes. Slate and tile roofing, zinc gutters, paint work and masonry all deteriorated in a soot-laden atmosphere.

Many people, perhaps most people in this country, were hardily indifferent to the claims of fine architecture, mainly because they had long been inured to ugliness in their own dwellings. When we spoke of the Man in the Street, we thought naturally of the Man in the Mean Street. We could hardly wonder that in the past the efforts to dispel the smoke pall from our towns by an appeal to the citizens' sense of beauty and hygiene had met with little success. But times were changing. Indisputable figures had shown that the lightening of the soot-fall in our great towns had coincided with the increasing use of smokeless fuel in the house.

TUESDAY.

The presidential address was given by Mr. John E. Daw on Tuesday morning. The founding of the B.C.G.A. in 1911 was, said the speaker, the first instance in the whole

world of the application of the principle of co-operative publicity to the marketing problems of a national industry. Since 1911 the soundness of that principle had been endorsed by frequent imitation. It had been applied for many purposes, in many countries; it had been adopted by our own Government; and nowadays co-operative advertising in the narrow sense was a commonplace.

The President's address was followed by two papers. The first was by Dr. L. Meredith Davies, M.D., B.Ch., and was on the subject of "Public Health and the Gas Industry."

Medical service to-day, he said, was more concerned with health than with disease. We were anxious, that was to say, that good nurture should obviate the need for treatment. Our problem now was the promotion of the health of the individual, to the end that as a race we might grow in health and vigour. Of all the problems of public health, few had merited or received more attention from medical research workers in this country than the question of fuel energy for heating and lighting in its relation to health. What were the qualities which the medical man demanded from a modern fuel? No doctor to-day who had studied the incidence of respiratory and other diseases in smoke-polluted areas would disagree with the statement that in the interests of the whole community it was desirable to have a smokeless fuel in private houses as well as in manufactories. It was essential, in the second place, that such a modern fuel, while it was cheap enough to be used by all classes, should also be clean, efficient and reliable in use, and, further, it must satisfy modern standards of hygiene, comfort and ventilation in the vital matter of room heating, which had been the subject of much recent investigation by distinguished medical authorities. It must satisfy modern standards of cleanliness by making easy the provision of good supplies of hot water. And, finally, it should be so various in its application that it could be used for the preservation of food in a pure state by refrigeration, and for the disposal of refuse by proper incineration. Gas was free from all the disadvantages of coal. It was smokeless, for all the smoke-forming constituents of coal had been converted at the gasworks into valuable by-products; it was absolutely clean; it necessitated no manual labour in home or factory, and it was thermally efficient thus allowing the atmosphere to be kept cool and fresh. Efficient room-heating was one of the most important considerations in the maintenance of health. In order to function properly the human body must be kept at a certain definite temperature. Apart, however, from mere considerations of warmth, comfort indoors depended just as much on ventilation, a subject which in the past had often been badly misunderstood. In close, crowded rooms, the discomfort caused was *not* due primarily to the composition of the atmosphere, but to its physical state. Under ordinary circumstances, the concentration of carbon dioxide was never sufficient to act as a poison and the oxygen in the air was never sufficiently reduced to have the least physiological effect. On the other hand, the warm, moist air of a crowded room did affect considerably the mucous membrane lining the respiratory tract as had been conclusively shown by Sir Leonard Hill and Dr. Muecke.

The conclusion to be drawn, then, was that the air in a room should be cool and moving, and the only way to keep it so in a confined space was to change it frequently, that was to say to ventilate the room. There were many ways of fulfilling the requirements. Some systems depended mainly on radiant heat and some mainly on convected heat. To produce ideal conditions, which approximated to a spring or autumn day, with the sun shining and a fresh cool breeze blowing, radiant heat was necessary and it would also generally be necessary to heat the air slightly to bring it up to the required temperature of about 55 deg. Fahr. Naturally radiant heat was converted to some extent into convected heat when the walls and furniture became heated. Therefore a source of radiant heat such as a fire was capable of fulfilling all the necessary conditions if the occupants of the room could sit at the right distance from it. If, however, the air temperature had to be raised considerably some form of central heating system would be the most economical method. In the ideal installation, then, there would be automatically controlled central heating to keep the air temperature correct all over the building, and some source of radiant heat and some form of ventilating system in every room occupied for any length of time. The gas fire with its lower fuel cost and its high radiant efficiency, was one of the most economical of the convenient sources of radiant heat. Moreover, it had the added advantage that, in conjunction with a flue, it formed an excellent ventilating system. Normally a gas fire would have the effect of changing the air in a room three or four times in an hour, and this was quite sufficient for all normal requirements and yet did not cause air currents rapid enough to make the room draughty. The advantages of a gas fire over a coal fire, which would both give radiant heat and ventilate, were obvious, for coal was inseparable from dirt, smoke and unproductive hard work. The open coke fire, from the point of view of health and convenience, was intermediate between the gas and the coal fire. It could be lighted by gas, entailed less work than coal, and was smokeless. It was therefore the most suitable type for those who preferred to use solid fuel, and it was better than a coal fire in that it made no smoke or soot. Gas was used to a large extent for panel heaters and heaters of the panel type as well as for open fires. In some cases each panel had a separate burner, and the products of combustion were removed through a special duct by a fan; more generally, however, a system of hot water pipes embedded in plaster or cast iron was used. The great advantage of panel heating was that it had the economic advantages of ordinary central heating while it gave out the necessary amount of radiant heat all over the room. Panel heaters could be fixed to the ceiling, walls or floor, and could be made quite invisible, or could be disguised as timber panels, skirting boards or dados. Those in the ceiling gave the largest percentage of radiant heat, but even those in the walls gave out about 60 per cent. of their heat as radiant heat, when run at about 100 deg. Fahr. The obvious argument of the uninstructed against ceiling heaters was that they gave rise to hot heads and cold feet. Actually, however, on account of reflection from walls and furniture the heating was remarkably even, and the air temperature was practically constant except for a few inches from the ceiling.

The lecturer then spoke of the uses of gas as an illuminant, for cooking, water heating and refrigeration, and concluded by dealing with the question of gas in the factory.

A paper, read by Sir Leonard Hill, F.R.S., on "Gas as a Source of Radiant Energy for Treatment of Disease," concluded the main part of the morning session.

In the afternoon visits of interest were paid to the Guildhall, the Cathedral, to the gas works and showrooms. In the evening, a dinner was given at the Civic Hall, by the chairman and directors of the Exeter Gaslight and Coke Co.

Wednesday.

The conference came to an end on Wednesday, after papers read by Messrs. W. N. Westlake and Stephen Lacey, on internal association matters, with a luncheon at the Civic Hall, given by the Association to the retiring president and the directors of the Exeter Gaslight and Coke Company.

INVISIBLE CENTRAL HEATING.

A new system of invisible central heating by hot water or steam has recently been introduced in this country. The system is known as the floor "Border" and "Radiant Panel" method of warming, and has recently been installed with success in several of the leading hotels, including Claridge's Hotel, the Washington Hotel, and the Queen's Hotel, Hastings, by the manufacturers, Messrs. Comyn Ching and Co. (London), Ltd.

The radiator is replaced in the case of the floor "Border" system by utilising the surface of the floor in the form of a warmed

FRONT AND REAR VIEW OF THE "RADIANT" PANEL.

border of marble, tile, terrazzo, etc., carried round the room near the skirting, ensuring an equalised distribution of heat and the elimination of down draughts from windows and draughts from under doorways. The heating element employed in this system may also be used for warming the surface of walls in cases where the covering is finished in marble, tile, terrazzo, and similar material.

The "Radiant Panel" system is designed for the purpose of utilising any convenient space available on the surface of the wall, such as in a window recess between the skirting and window cill, or between window architraves, and also the space normally allocated to the decorative wall panels themselves. After the steel face of the panel has been suitably painted, it is indistinguishable from the surrounding decorations of the room. The "Radiant Panel" is a specially constructed steel element as shown in the illustration, 1¼ in. thick only, and may be cut to any shape or size to suit requirements.

Domestic Hot-water Systems.

In support of the contention of the suitability of the Rolyat domestic hot-water system for installation in small and medium sized houses, the directors of the Rolyat Tank Company have acquired new works, larger and better equipped, to deal with five times the present output. The offices remain at Toft Green. This is the second expansion within one year. Full details of the "Rolyat" system will be supplied on application to the firm's offices at Toft Green, York.

An Insulation Board.

The Patent Impermeable Millboard Co., Ltd., issue details of a British-made building board. This "Insulwood" is made from wood fibres, chemically treated and waterproofed to prevent rot or disintegration. It is claimed that the board gives maximum thermal and sound insulation consistent with structural strength and durability. Made in standard sizes, it is useful for interior lining for houses and buildings generally. "Insulwood" has merits also for external use, especially for buildings of the bungalow or pavilion type, where its high insulative properties and permanence are said to be most useful. This material, it may be remembered, was used in the "Silent House" at the last Building Trades Exhibition at Olympia. A booklet giving full details and examples of buildings executed will be sent upon request to the company at Sunbury Common, Middlesex.

DOMESTIC ELECTRIC WATER HEATING

By ELAM EAVES.

During the past five years there have been considerable developments in the field of electric water heating for domestic purposes, and the writer feels that the time is now opportune for collaboration of builders, architects and electrical engineers in this respect. As a matter of fact, the heating of water electrically forms the last link in the chain of the all-electric house, and it should be noted that already there are thousands of domestic electric water heaters installed in this country.

The fact that the domestic electric water heater has a higher load factor than almost any other piece of electrical apparatus means that it is very useful to the supply engineer and ensures that suitable rates will be available to make electric water heating a commercial proposition in most districts in the very near future. In fact, in many districts the halfpenny rate for electric water heating is already available, and this results in the obtaining of a hot bath of, say, 22 gallons at 105 deg. for the expenditure of under 4 units and at a cost of 2d.

It will be noted that this cost is competitive with other methods of water heating, so that, taking into consideration the special advantages of electric water heating—such as cleanliness of operation, the fact that there are no fumes to be disposed of, that hot water is available at any time in the day or night, and that the apparatus is automatic in operation and needs no attention whatever from the householder, there should be a large field opening up in this direction.

It would be well at this stage to give an idea as to cost of operation in an average household. From figures obtained in various districts, it is found that the domestic hot water usage varies greatly from house to house, so that it is necessary to make certain assumptions before giving figures at all, and the figures can then be adjusted by the individual to meet particular requirements.

Assume that a 20-gallon water heater, as illustrated in Fig. 2, be installed in the kitchen of a house and be connected to the kitchen sink and the bath and wash-basin, it may be taken that 12 units of electricity will be expended per week to cover loss of heat through heat insulating material of the water heater and of the piping system, and to give the facility of hot water supply day and night. Now, the amount of electricity further expended, of course, is in exact proportion to the amount of hot water used, and, assuming a household where two hot baths of 20 gallons are required per day, and a quantity of water equal to one hot bath is required per day for domestic purposes, the usage of electricity in this respect will be 63 units per week. The total usage of current per week, therefore, to meet the requirements of two hot baths per day and usual domestic requirements will be 75, and at ½d. per unit the cost would be about 3s. per week.

The case above-mentioned, of course, is well above the average, as this will mean the use of about 4,000 units of electricity per annum, and it should be mentioned that in many actual cases of installations of this type for the usual household, the current consumption is only between 2,000 and 2,500 units per annum, so that the 3s. per week above-mentioned would be reduced accordingly for the average household.

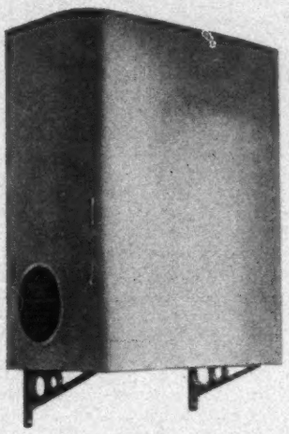


Fig. 3.—Rectangular Cistern Type Electric Water Heater.

Regarding the design of water heaters, development is taking place on the lines of thermal storage rather than instantaneous heating. In other words, instead of a high loading (say, 12 or 14 kw.) instantaneous water heater, a low loading (1 to 2 kw.) storage water heater is preferable, for with the former the cable cost and switch gear cost are high, while the high maximum demand low load factor usage of electricity in this case does not entitle a user to the special low rates for water heating which are available where the storage principle be employed.

The types of water-heaters available at the present time are illustrated in figures 1, 2 and 3, figure 1 being of the non-pressure type, figure 2 pressure type water-heater, and figure 3 rectangular cistern type water-heater.

The non-pressure type water-heater is essentially for use over wash-basin or kitchen sink, and the only plumbing required is a connection from the cold water supply.

The pressure type water-heater is suitable for general supply to kitchen and bathroom, and is usually installed in the kitchen of a house, taking the cold water supply from the ball valve tank in the roof of the house and the expansion pipe from the water-heater running up to the roof tank.

The cistern type water-heater, especially the rectangular type illustrated, is suitable for installation over the foot of a bath and uses space which could otherwise not be used. It is possible to instal a water-heater of this type in a bathroom where there is no space available for the water-heater of the type illustrated in figure 2.

The expansion pipe in the cistern type water-heater is, of course, incorporated, so that the only connections to the water-heater are a cold water supply, either from the mains or from the ball valve tank in the roof of the house, or block of flats, and the hot water supply pipes to the bath, wash-basin, dressing-room, etc.

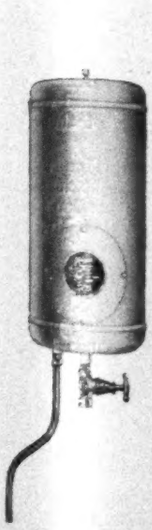


Fig. 1.—Non-Pressure Type Electric Water Heater.

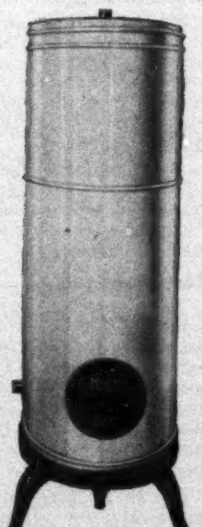


Fig. 2.—Pressure Type Electric Water Heater.

The writer suggests that the time has arrived when builders, architects and electrical engineers should get together on the subject under discussion, as it is probable that, especially in the case of new property, builders and architects could suggest other more suitable shapes for water-heaters, or could, perhaps, adjust a kitchen or bathroom lay-out to allow the water-heater installed to conform more nearly to the general scheme of architecture or decoration in the particular bathroom or kitchen than is at present the case.

Though, of course, from the manufacturing point of view, it is well to keep down to the minimum the number of sizes and types of water-heaters, there is a certain amount of flexibility so far as tank design is concerned, and any alteration in tank design would not necessarily affect the design of the electrical apparatus embodied.

It would be well at this stage to refresh the minds of readers as to the construction and operation of electric storage water heaters, and reference should be made in this respect to figure 4, which shows a typical section of a water heater suitable for either pressure connection or non-pressure operation.

The water heater consists essentially of an inner container (tinned copper or galvanised steel—depending on the class of water in a particular district), this container being suitably flanged to take an apparatus plate embodying tubes to carry one or two withdrawable heating elements, and a thermostat to cut off the supply of electricity to the elements when the water in the container reaches a pre-determined temperature of, say, 180 deg. or 160 deg. in very hard water districts. This apparatus plate is readily removable for defurring purposes, this, of course, being an essential feature in hard water districts. To ensure low heat losses from this hot water container it is lagged or heat insulated with granulated cork, the whole being contained in an outer steel case, finished in high-class white enamel. When used as a non-pressure or open outlet type water heater, the anti-drip cap on the top of the outlet stand pipe comes into operation and ensures that there will be no dripping from the open outlet pipe, while the water expands during the heating-up period.

It may be mentioned that, apart from a very big field for the use of domestic electric storage water heaters, there is an increasing industrial field in this direction, especially for the supply of hot water to hotel and canteen kitchens, and a large number of water heaters of up to about 500 gallons capacity have already been installed for this purpose.

Electrical manufacturers will always appreciate the opportunity of giving advice or making recommendations regarding electric water heating possibilities in connection with any new building scheme or regarding conversions of systems in existing property.

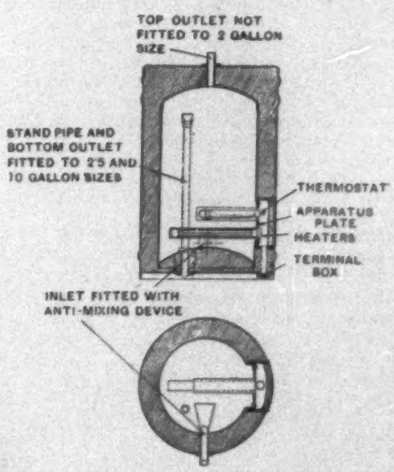

TOP OUTLET NOT FITTED TO 2 GALLON SIZE
STAND PIPE AND BOTTOM OUTLET FITTED TO 25 AND 10 GALLON SIZES
THERMOSTAT
APPARATUS PLATE
HEATERS
TERMINAL BOX
INLET FITTED WITH ANTI-MIXING DEVICE

Fig. 4.—Typical Section of Electric Water Heater.

BOOKS ON HEATING AND LIGHTING

Electricity for Architects. By C. Holmes Wagnorn. Blackie & Son, Ltd., London and Glasgow. Price 6s. net.

The part which the architect has to play in the process of building is difficult and unique. It is for him to control the work of a score of trades, none of which he can afford to leave to its own devices, yet in none or few of which he can profess any intimate technical knowledge such as the good craftsman must have at his finger tips. How far he dare go in interference with the men who do the job is one of the problems which take many years of experience to solve, and which some never solve throughout a long life of practice.

Such works as "Electricity for Architects" attempt the task of sifting out essentials from non-essentials in technical practice, and few succeed in the task more successfully than in this work. The author is to be congratulated on having avoided the extremes of error—neither slurring over the things of technical importance nor fogging the issue with technicalities. At its reasonable price it should be a popular book in the library of the practising architect.

Electrical Wiring and Contracting. Edited by H. Marryat, M.I.E.E., M.I.Mech.E., London. Sir Isaac Pitman and Sons, Ltd. Seven vols., 6s. each, net.

For this important work Mr. Marryat has got together a really good "team," and the subject receives adequate treatment throughout. With so many writers engaged it is difficult to avoid a certain amount of overlapping, and possibly the editor had this in mind when he planned to complete the work in eight volumes, but so well have he and his staff co-operated that it has been possible to reduce the number to seven without leaving any feeling of incompleteness. The contributions which are likely to make the greater appeal to our readers are the following: "Private Power Plants," by H. Cotton; "Signs," by G. A. Wedge; "Electric Alarms," by J. F. Corrigan; "Radio Installation," by H. V. Gibbons; and "Theatre and Cinema Installations," by C. R. Bates. Each writer presents his subject attractively and informatively, but above all, in such a manner that the average reader, though not an electrician, will derive a considerable amount of helpful information.

There is, however, one section that is of paramount interest to the architect and the builder. Heating and cooking by means of electricity have made immense strides since the war, and with current ever tending to become cheaper, we are already a long way on the road towards "the all-electric house" as an economic proposition. Consequently, both architect and builder need to be fully informed as to the possibilities of the matter, so as to be in a position to give sound advice as to comparative results and costs. Further, considerable scope is offered for those called upon to improve existing systems, particularly in connection with domestic hot water supplies. Section XVIII, vol. V, "Heating and Cooking," by John F. Stanley, B.Sc., A.M.I.E.E., deals with the subject with great clearness.

Plumbing and Gasfitting. Edited by Percy Manser. London: Sir Isaac Pitman & Sons, Ltd. Seven vols. 6s. each net.

For this work the author has enlisted the services of an able team of contributors, and this has resulted in a production which goes far to disarm criticism; but in our view it would have been better to have issued it as two, or perhaps three, works. From the point of view of the craftsman or master plumber, the amount of space given over to gas fitting is disproportionate to the place it occupies in their ordinary work, particularly when it is borne in mind that in many districts almost all fitting is carried out by the supply companies, many of whom not only instal but undertake the maintenance of all the ordinary domestic supply pipes and fittings. Larger installations for manufacturing processes and large-scale heating, cooking, or laundry plants are not as a rule entrusted by architects to other than specialists who do not engage in ordinary plumbing work. For this and other reason we are of opinion that it would have been better had gasfitting been treated as an entirely separate subject.

With this reservation we have little but praise for the work as a whole. From the point of view of the student a vast amount of information is presented in a practical and readily understandable form, nearly all of which must prove of service to him at some time or another in his chosen career. As a text-book it is excellent; to the craftsman ambitious of improving his position its clarity will serve as a distinct encouragement to persevere. This is one of the great advantages offered by works written with the object of bringing forward the practical rather than the theoretical side of craftsmanship in any of the branches. But it must not be inferred that the theoretical side has been altogether or even too much neglected; far from this being the case, Mr. Norman Howdill's sections on Physics and Chemistry will be found to be invaluable both to student and craftsman, and may be read with profit by the more advanced.

The master plumber and his estimator will find that the work offers solutions to many of the difficult problems with which they are from time to time confronted. The sections dealing with Geometry, Measuring and Estimating will particularly interest them because it is rare to find these so well dealt with in average publications. Though not primarily written as a work dealing with the architectural point of view, it is one worth a place on the reference shelves of the architect, though for this purpose it is to be regretted that the editor has not seen fit to adopt a more orderly sequence and one more in keeping with that usually adopted in specifications and bills of quantities.

HEATING INSTALLATION OF THE MIDLAND BANK

In our issue for April 17 we illustrated and described the new headquarters of the Midland Bank in Poultry, E.C., erected from the designs of Messrs. Gotch and Saunders (Laurence M. Gotch, F.R.I.B.A.) with Sir Edwin Lutyens, R.A. The heating installation is one of considerable interest, and the following description of it may be appropriately given in this issue.

The Dunham low-pressure steam system was selected, working under the control of pneumatic temperature control apparatus. Each radiator is closed off automatically when the predetermined room temperature has been reached.

Steam supply is taken from the main boiler plant, which is oil fired by the Clyde Fuel Oil System, Ltd., and is reduced through reducing valves to approximately 1 lb. per sq. inch, at which pressure it is fed into the heating system. The pressure jet system plant is in duplicate.

Dunham electrically driven vacuum pumps are installed, producing a vacuum on the condense mains and automatically collecting the condense water, discharging this to hot well in readiness for boiler feeding.

The boiler installation consists of three boilers of the "Economic" type, set in brickwork. Each boiler is 8 ft. dia. by 14 ft. long, with double flue and return tube arranged for brickwork setting, and constructed for a daily working pressure of 200 lb. per sq. in. The normal evaporation of each boiler is 7,000 lb. of water per hour from and at 212 deg. F. to steam at the above-mentioned working pressure when burning a good quality coal of not less than 13,500 B.T.U.s per lb.

The boilers are arranged for easy conversion to oil firing; as a matter of fact, as stated above, they are now working on oil fuel. This apparatus includes duplicate pumping and heating plants, also starting-up gear. The boilers are connected up to a mild steel chimney, suitably brick lined, 152 ft. high by 3 ft. 6 in. by 5 ft., encased in a brick shaft.

The installation is complete with all the necessary steam feed and blow-off piping, the boiler pumps being of the vertical type, two in number, each 7 in. by 5 in. by 12 in., and capable of supplying all the water required by any two boilers at one time.

The plant is run on scientific lines. The boiler house equipment includes three differential draught gauges, carbonic acid gas recorder, CO_2 indicator with disc type recorder, and thermometers for taking the temperature of the gases in different parts of the settings.

Messrs. Ruston and Hornsby, Ltd., of Lincoln, supplied the whole boiler installation complete.

Messrs. Comyn, Ching and Co., Ltd., carried out the entire heating contract to the instructions of the consulting engineer, and the present scheme provides connections for extending to the future wings of the building.

THE WEEK IN PARLIAMENT

Westminster, Wednesday.

Rural Housing.

Mr. Perry asked the Minister of Health if the operation of the Housing (Rural Workers) Act, 1931, was to be suspended or restricted as part of the Government's economy policy, and, if so, what steps would be taken to meet the need for more and cheaper houses in rural areas.

Mr. Gould asked whether it was the intention of the Government to carry out the housing programme of building 40,000 agricultural cottages during 1931-32, as provided for under the Rural Workers Act, 1931.

Mr. Chamberlain said that there was no intention of repealing the Housing (Rural Authorities) Act, 1931, to which he assumed the questions referred. Applications from Rural District Councils under this Act were still coming in, and in accordance with subsection (3) of Section 1 all such applications would be eligible for consideration, provided that they were made before November 30. In accordance with the Act, applications would be first considered by the committee appointed by his predecessor, of which Sir Tudor Walters was chairman.

Waterloo Bridge.

Mr. Mills asked the Minister of Transport if his attention had been called to the fact that the temporary wooden supports to the damaged arches of Waterloo Bridge were infected by death-watch beetles; and whether any inspection had been made of those supports since 1923.

Mr. Pybus said that the bridge and its supports were subject to constant inspection by the engineering staff of the London County Council, and he was assured that Mr. Mills was misinformed.

Rent Restriction.

Mr. Perry asked the Prime Minister whether, in view of the increasing prices of food and other commodities since September 21 and also the increased taxation falling heavily upon persons who had purchased their houses on the instalment or mortgage plan, it was the intention of the Government to introduce a new Rent and Mortgage Interest Restriction Bill.

Mr. E. D. Simon, Parliamentary Secretary to the Ministry of Health, who replied, said that the action which the Government proposed was to extend the Rent Restriction Acts by means of the Expiring Laws Continuance Act.

ARCHITECTS' & BUILDERS' INQUIRY BUREAU

We are glad to give questions and answers, but cannot accept responsibility for contributed replies, especially on legal matters.

May we appeal to our correspondents to submit their queries on paper of a size easily filed, and written as tersely as possible, or, better still, in typewriting? We do not undertake to reply to inquiries concerning proprietary materials.—Ed.

QUESTIONS.

Government Contracts.

Sir,—I shall be glad to learn from any of your correspondents if, after submitting tenders for work under H.M. Office of Works, War Office, Air Ministry, or other Government Department, one has the right to know the results of the tendering. One usually receives an acknowledgment, but never any figures. Having tendered unsuccessfully a very large number of times for one of the above-mentioned departments, I should like to be informed if the list of tenders received for any piece of work can be seen, and where. TIRELESS TENDERER.

[It is not the practice of any Government Department to publish full lists of tenders. In most cases, however, the name of the successful firm is made public. Results of tenders are regularly given in our columns.—Ed.]

Country House Drainage System.

Sir,—A drainage system was recently installed in a country house. The accommodation is as follows :—

The house contains seven bedrooms, sanitary accommodation, three w.c.'s, scullery and pantry sinks, two baths; gardener's cottage, one w.c. and one sink.

The main household consists of five adults, plus average of one visitor for week-ends.

The cottage household consists of two adults and four children.

The whole of the sewage (excluding all surface and rain water drains) is taken into a liquefaction tank 2 ft. 6 in. by 4 ft., with a depth of 4 ft. 9 in. from inlet to bottom of tank. The tank is ventilated by 2 in. L.C.C. pipe taken 9 ft. above tank. The effluent discharges into an upward and downward filter 5 ft. by 3 ft., having two slate divisions and 3 ft. depth of coke breeze.

It is now found that the system is not working satisfactorily; the coke breeze is properly graded and cleaned out every six months, but a disagreeable smell is noticed proceeding from the ditch into which the effluent discharges. The depth of the crust in the liquefaction tank is 2 ft. 6 in. in lieu of about 6 in. to 9 in. Do you think this is due to the size of the liquefaction tank not being satisfactory, and, if not, could you suggest cause? READERS.

Estimates.

Sir,—Can I claim my commission in the following circumstances? Some time ago I arranged with a firm of contractors to prepare estimates for them at an agreed payment of £1 for the estimate and ½ per cent. in addition if the estimate was successful. In the case of two estimates I prepared and forwarded to them to send in, my estimates were not used; if this had been done they would both have been successful, as the estimates that were accepted for both jobs were higher than the estimates prepared and forwarded to my clients by myself. What course should I take in this matter?

SOUTHPORT READER.

Heating Conservatory by Electricity.

Sir,—I should be glad of any information on heating conservatories and greenhouses by electricity. I have in mind tubular heaters. Are they satisfactory, and is there any basis of the ratio of heater to the cubical contents of the conservatory or greenhouse to maintain a certain temperature?

TOLLENTINE.

Cost of Flats.

Sir,—I am working upon flats built in blocks of four. The accommodation consists of three bedrooms, one living-room, scullery, w.c., and bathroom in each flat. The cubic contents for one block of four flats is 37,900 cubic feet. The walls are 9 in. Fletton bricks, finished on the outside with cement stucco. The roofs are covered with English-made flat tiles. I should be glad if any of your readers would inform me what the price of one block should be, built within a radius of 20 miles from the Bank. The number of blocks on one site is in one case two and in another case eighteen. The costs from figures given by the Ministry of Health appear to me to be somewhat confusing. All materials are British manufacture. R.I.B.A.

Flood Lighting.

Sir,—Can you inform me of the cost of the smallest outside flood-lighting unit, and its consumption in electrical units per hour?

MODERN.

ANSWERS.

Glazed Tiling.

[ANSWERS TO "SUPERVISION," SEPTEMBER 18.]

Sir,—1. The tiles may have been fixed in frost. If so, the tile or cement will show "cobweb" marks.

2. They may have been fixed by an inexperienced workman. The tiles should be soaked in clean water for at least 15 minutes. If this has not been done they will become detached after a time.

3. The cement and sand of floating of wall should be free from any other substance, such as plaster or lime, which will cause a blow-off owing to the different nature of the materials.

4. Heat caused by hot-water pipes or fireplaces in public places, such as picture palaces, where large numbers of people gather, will cause a temperature which may result in loss of tiles. T. BUXTON.

Sir,—Probably the tiles were not properly soaked before laying, and so sucked the water from the cement before thorough setting. It is best to soak tiles for several hours before bedding. METHOD.

Laced and Swept Valleys.

[ANSWER TO "A STUDENT," SEPTEMBER 4.]

Sir,—"Lecturer's" sketch of a laced tile valley well illustrates the weakness at the lap, and if "Student" will set it out, using crayons of differing colour and working to full size in slates instead of tiles, he will arrive at one of the reasons that led architects to abandon almost entirely this form of valley. He will find that in neither the laced nor the swept valley can he avoid weakness at the lap and a want of proper support that leads to early damage. It may also amuse him to find writers advocating bedding the slates in mortar on breeze concrete in quick succession to a previous sentence or two in which they have condemned tiering or torching. Owing to the fact that it was rapidly falling into disuse, the formation of a swept valley has become expensive for much the same reasons that thatching has become costly. But in both cases it has to be remembered that architects abandoned these methods of construction in favour of others which were at the time more costly, but more dependable. A lead valley eighteen inches wide in 6 lb. lead uses up 9 lb. of lead to each foot of its length, besides valley boarding tilt fillets and cutting and waste to slates. Yet when labour costs were low and all slates could form a swept valley, architects, in the light of past experience, reluctantly abandoned them. And the practice of taking them out of existing roofs and substituting lead at great cost has, as all builders of experience know, been constantly resorted to as the one sure means of effecting a repair having some claim to permanence.

ANOTHER STUDENT.

Bloom on Wallpaper.

[ANSWER TO "READER," SEPTEMBER 11.]

Sir,—I expect the trouble is that the sizing was at fault, for too strong a solution is worse than having it too weak. After all, the function of size is simply to form a skin over the paper to stop penetration of varnish. Some papers take a lot of size and some very little, and, of course, the weather has some effect on it, but very little.

G. B., HOLLOWAY.

Remedy for Wood Lice.

[ANSWER TO "THISTLE." SEPTEMBER 25.]

Sir,—If the woodwork can be dismantled, soak thoroughly in turpentine, and then seal up the surface with beeswax and turpentine. Otherwise, spraying with turpentine very thoroughly may achieve the same object, though not so certainly. S.

Employer's Liability.

[ANSWERS TO W. C. B. SEPTEMBER 25.]

Sir,—In my opinion, the leading and employing piece-worker is a contractor and an employer of labour and would not benefit by employer's liability. The opposite view can, however, be easily argued. I think your correspondent should inquire whether the man insures his workmen, as it is obviously the intention of the law that his subordinates should be protected, and there would be good ground for believing they have not been so protected by insurance.

DOUBTFUL.

[If it can be established that an independent contract exists in the circumstances described, then no liability attaches to W. C. B. But the task of determining between a case of independent contract and the relationships of master and servant is often one of great difficulty, especially when the remuneration is based upon the amount of work performed. In this case the remuneration is a given price per cubic yard for the gravel, etc., got from the gravel pit which "W. C. B." "runs." In all these cases the power of control generally proves to be the decisive test, and "W. C. B." has to ask himself whether he controls the pit or the "one man" or men the "one man" employs to get the gravel.

Another test as to liability is whether the work done by the "one man" or men the "one man" employs is work undertaken by "W. C. B." for the purpose of his own business; if so, he is liable.

On the facts stated, and in view of the difficulties attending the question, it does appear that "W. C. B." will do well to insure and protect himself.—Ed.]

Filling Surface Concrete Around Fillets.

[ANSWER TO "JAPSON." SEPTEMBER 25.]

Sir,—On the letter of the schedule an extra appears indicated. It is not quite a fair extra, however, for the fillets actually serve as very useful screeds in levelling up.

SUPERVISOR.

Dampness of Gable Walls.

[ANSWER TO "KING'S NORTON." SEPTEMBER 25.]

Sir,—This appears to be a matter now of condensation caused probably by stopping the pores of the plaster with petrifying liquid. The application of a thick matt paper may provide the easiest solution, otherwise it means stripping the plaster and re-coating with lime and hair. Incidentally, if the latter is done, a rough floated surface is the best check to condensation.

METHOD.

Tape Architraves.

[ANSWERS TO "HOSPITAL." SEPTEMBER 25.]

Sir,—I have used this method, but have been very much dissatisfied with results. There is an inevitable shrinkage between plaster and lining, and this acts in different ways. In places it stretches the canvas and disturbs the paint; in others it either tears down the middle or drags away. LEDGES.

Sir,—I have used canvas strips in lieu of architraves in the manner described by your correspondent in bathrooms in domestic work, and find them entirely satisfactory.

W. W. WOOD.

Plywood Mahogany Panels.

An answer to this inquiry, received from Mr. John T. Mackinson, has been posted to our correspondent.

THE BUILDING TRADE

ESTIMATING: SOME HINTS AND DATA.—XIV

By J. R. TAYLOR.

ESTIMATING MISTAKES.

It would be strictly true to say in regard to estimates submitted in competition for building works that they are always founded on quantities prepared in some form or other. Even that least dependable method of framing an estimate on a price per cubic foot presupposes an accurate ascertainment of the content of the building to be thus valued, and calculations based on scaled measurements are necessary. Though reliance on cubing would even in the case of the most experienced architects and builders be extremely dangerous when used as a method of assessing the value of building works, it yet has a certain usefulness. A hard, clean drawing in black and white at eighth-scale always gives an impression of a small job as compared with coloured drawings to the same or a larger scale. Further, where estimates have to be prepared at such speed that the danger of making serious mistakes is much increased, it is just possible that a comparison made between the cube content of the building and the sum total of the worked-out estimate may reveal so wide a discrepancy as to raise an alarm before it is too late. It is, however, curious that architects who are so often disappointed at the differences found between the preliminary estimates made for the information of their clients and the lowest tenders received should still attach as much importance to cubing as is sometimes the case.

An Analogy.

The dangers attaching to valuing by cubing may perhaps be most easily explained by taking some simple constructional operation not too dissimilar from the work of a builder. For this purpose we will look at the matter as it would appear to a packing-case maker called upon to give a keenly competitive estimate for a large number of boxes of various sizes. Not to render his task too difficult to begin with, we will assume that, except for differences in size, his boxes are all alike and that they are to be constructed of inch deal with butted joints nailed together and having loose boards cut to the lengths and widths required for the lids :—

120 of such boxes measuring 3 ft. by 3 ft. by 3 ft. outside would have a cubic content of 3,240 ft., and the net area of deal used in their construction would be 6,127 ft. (nearly).

120 boxes 6 ft. by 3 ft. by 1 ft. 6 in. would have exactly the same content, but would use up more than one thousand additional feet of timber.

120 boxes 4 ft. by 4 ft. by 4 ft. would contain 7,680 ft. cube and use up no more than 11,046 ft. super of timber.

It will be seen that whereas the first boxes use up 1.89 ft. super of timber per foot cube of box, the second size uses 2.20 ft. super and the third but 1.43 ft. super. It follows that the boxmaker, having to make up a large number of boxes in the three sizes so as to have three groups each of which totalled up to the same cubic content per group, might have to pay £189, £220 and £143 for his timber in each group respectively. Disregarding the differences of construction as to divisions, linings and finishings, it would also follow that these sums multiplied by ten (£1,890, £2,200 and £1,430) might represent the true value of three houses each having exactly the same cubic content. When allowance is made for variation of construction no greater than that commonly met with, the discrepancies might be still wider.

Rough Quantities.

Many architects in the earlier part of their career are not easily persuaded as to the desirability of properly drawn quantities as a basis for all competitive tendering by builders. When it is pointed out to them that without quantities accurate estimating is impossible they remain unconvinced, and some of them even go so far as to say that the smaller builder, the country builder, or, at all events, the builder they wish to employ, does not understand quantities. I have on occasion met architects whose detailing during the progress of the work might well lead one to suppose that they themselves did not understand quantities, but never was there a builder who when presented with the details could not say whether they fell within or without the quantities. Some architects believe that the provision of quantities tends to lift the price at which builders can be found to do the work. There is just that amount of truth in this statement that makes it dangerous, as it tends to gloss over its general inaccuracy. It is true that in the absence of quantities properly prepared by a qualified surveyor the likelihood of the builder and/or his estimator making a serious error is greatly increased; but the client does not necessarily profit by the mistake. Mistakes may tend to lift as well as to lower the estimator's price. When the price is increased by reason of the errors made, either the builder makes a greater profit than he expected or, as is far more likely, he loses the job. Where, on the other hand, the tendency is in the opposite direction one of several things usually results, and in order of frequency they may be set out thus :—

(*a*) The builder discovers his mistake while the work is in progress, and in order to cut his losses as much as possible, reduces the quality of his materials and workmanship to the lowest point at which the architect will accept them. All experienced clerks of works and most architects know how difficult a matter this is to deal with, especially in regard to made-up goods where the rejection might bring the work to a standstill or at least greatly delay it. In border-line cases the architect is often almost driven to accept a quality falling well below his expectations. It is also unfortunately true that a good deal of the difference in quality and value may remain undiscovered for some time and only come to light long after the expiration of the maintenance period. In such cases the architect may have to defend an action brought by an aggrieved client or at the least suffer some loss of prestige. At the very best his client is unlikely to obtain as good value for money as would have resulted from the acceptance of a tender based on an estimate free from errors at the outset.

(*b*) The builder may discover his mistake and withdraw his tender before the contract is signed. This is of such frequent occurrence in relation to tenders obtained by public bodies in response to their advertisements that it has caused a good deal of comment in quarters not always too well informed. But at the moment we are more concerned with such a happening when the architect is acting for a private client. It may place the architect in a position of peculiar difficulty, and particularly so when his own preliminary estimate has erred on the side of optimism. Nearly always it leaves a feeling of disappointment behind that may grow worse, and in at least two cases within my knowledge the angered client has abandoned his intention to build for the time being and ultimately engaged some other architect. Builders of good standing are extremely reluctant to withdraw tenders, and if required to estimate without quantities will take cover rather than face the possibility of having to withdraw. Where, as often happens, all those tendering are of about the same standing, the preparation of proper quantities would in nine cases out of ten result in keener competition and a lower price.

(*c*) The builder may come out of the transaction without profit or sustain a small loss. His gain in wisdom may in such event prove to be cheaply purchased.

(*d*) The builder may come out with such a loss that, though not driven completely out of business, he is so crippled that he may never be able to "make good" entirely. Such cases are numerous; so numerous, in fact, that it is doubtful whether they should not have been dealt with earlier when considered in order of frequency. In the great majority of cases the reasons for failure given by builders in bankruptcy proceedings are stated to be loss on contracts owing to ill-health. In nine cases out of ten the loss is due to mistakes in estimating, and the ill-health is brought on by the strain and worry of fighting the long losing battle following the first serious mistake. Far too many builders are reduced to such a position that they must take contracts at unremunerative rates because, until they get a draw on the work in hand, they are not able to pay for material supplied for work that has been completed. The evil results of this are so well known to the whole body of builders and their merchants that I need not dwell on them here; the young, inexperienced beginner need only talk it over with the first traveller who has been a few years on the road to obtain an understanding of how widespread this trouble is.

The majority of the estimates that lead to results of this sort are based on quantities in some form or other taken in the builder's office by himself or on his behalf. In regard to this there are many circumstances leading to mistakes. Long experience has convinced me that no architect with a practice worth considering, nor builder with a business worth supervising, can possibly find time for taking off quantities in such a manner as to ensure reasonable accuracy. To begin with, an architect who can take quantities accurately and in proper form has missed his vocation, because this work requires qualities that are seldom coupled to those required of the artist. There are, of course, exceptions to every rule, but, in general terms, a set of quantities prepared personally by an architect who is really an architect is seldom fit to be included as a legal instrument amongst the contract documents. This is expressed rather strongly, but it is the outcome of some forty years' experience in regard to quantities of all sorts. And as regards the builder, unless he were an estimator to begin with, he cannot properly prepare quantities, and if he were an estimator to begin with, no word from me should be necessary to warn him of the folly of doing this work when, even if he can secure freedom from interruption, his mind can hardly be clear of the ordinary everyday anxieties and worries pertaining to his business. At the same time, I would have every architect try once to take off an accurate bill of quantities in proper form so that they might arrive at a better understanding of what it involves. They then might realise how absurd it is to expect accurate estimates from builders at short notice. Incidentally, more often than not the estimator is given a longer time in which to price quantities prepared by a surveyor, than to prepare and price his own.

Builders' Quantities.

It is a great mistake to suppose that the rough manner in which what are known as "builders' quantities" are prepared necessarily implies a want of skill on the part of those who do this work. It sometimes implies want of training, but it nearly always implies want of time; and want of time is bound to result in some want of accuracy. Quantities of this sort should never be taken by one man and priced by some other, and it is far better to price them as they go on than to leave it until they are otherwise

completed. When this is done they may be very much shortened, and a good deal may be left to implication that, had another to price them, would need to be written out at length. For instance, two items might well follow one another, thus :—

Yards—6 in. drains.

Yards—Ditto, in concrete.

In such a case the estimator might price the first item as including digging, filling, ramming, making good surfaces at some depth mentally noted. The second might be at a greater depth, or less, and require many other matters to be taken into consideration besides the addition of concrete. In such a case the estimator might well overlook or forget some item meant to be included if he left his pricing to the end, and of course, to some other estimator, they would hardly convey any information that would help him to value them. This sort of thing can, however, only be indulged in by an estimator of proved capacity in the full-time service of a builder who has implicit confidence in his ability. Should the contract be secured and a copy of the builder's estimate be required for filing as a schedule of prices, it is best to attend on the architect with them just as they are and ask for the necessary time to extend them into proper form, or, to put it more correctly, into something approaching proper form.

(To be continued.)

THE NATIONAL AGREEMENT

UNANIMITY ARRIVED AT.

We are glad to be able to announce that complete agreement was reached on Friday at a meeting of the Joint Wages and Conditions Council for the Building Industry. As a result, the Operatives' executives have withdrawn the notice tendered to the National Joint Council to terminate the National Agreement, which will now automatically continue to September of next year. The executives on both sides are to be congratulated on the efforts made to arrive at a satisfactory solution. So far-reaching are the ramifications of the industry that any disagreement within its ranks might have a very severe effect upon trade as a whole.

Essentially, we understand, the previous agreement stands, and the sections dealing with the control of wages on the sliding basis of the cost of living figures remain. The indications are that, while rates of wages will remain untouched for the present, there may be a drop in the early spring, as determined by the average index of cost of living taken over the twelve months ending December 31, 1931.

There are certain important alterations, however. (*a*) In the proposals put forward last March it was agreed by the committee of the N.J. Council to try a joint experiment with regard to a system of providing bonuses relating to the time and progress schedule. Now, as a result of last Saturday's meeting, the Employers have agreed to drop the scheme. (*b*) A further alteration of the Agreement concerns the proposal the Operatives made in March that superrates should be paid in certain large towns. The Operatives' executives have now withdrawn this request so far as the N.J. Council is concerned, but a Committee of Inquiry has been formed outside the Agreement to elucidate the facts. (*c*) Provision has been made, as arranged last March, to allow some elasticity in the matter of working hours in those districts—principally on the South Coast and in certain University towns—where employers and operatives are put to a disadvantage by adhering strictly to the hours prescribed in the Agreement. (*d*) Provision has been made to allow of greater smoothness in the working machinery locally and regionally.

BUILDING CONTRACT :

SATISFACTION OF THE SURVEYOR.

We notice that a contemporary has recently called attention to the case Newton Abbot Development Company, Ltd. *v.* Stockman Brothers (47 T.L.R. 616) and that they conclude their observations by remarking: "This is rather an unusual case, and we shall watch with interest the result of any appeal that may be taken in the matter."

The facts of the case as reported may be briefly stated as follows:—The defendants had agreed with the plaintiffs to build eighteen houses. The price of the houses was to be £500 per house, and under the contract the houses were to be built in accordance with plans and specifications attached to the contract, the work to be carried out "to the satisfaction of the surveyor and the sanitary inspector" of the Newton Abbot Urban District Council. The houses were completed in September, 1928, to the satisfaction of the surveyor and the inspector of the Council, and were sold to purchasers at a price of £600 which, allowing for the cost of the land and crediting the subsidy received, represented a profit of £25 per house. In November, 1929, some complaints were made to the plaintiffs by purchasers of houses referring to small matters, but in April, 1930, a joint complaint was made by purchasers relating to serious defects in the houses which were stated in the judgment delivered by the Court to be breaches both of an express agreement to cement and an implied agreement that the work should be properly done. The plaintiffs had expended £471 15s. in making good the matters complained of, and in this action were seeking to recover this sum from the defendants, the builders of the houses. Notice of the complaints had been given to the defendants when they were received.

The defendants raised two points in defence: (1) That as the surveyor and sanitary surveyor of the Council had expressed satisfaction with the houses, that really concluded the matter, and it was said that in doing the repairs for the purchasers the plaintiffs had only been actuated by a sense of generosity; (2) that the plaintiffs had suffered no damages as they had sold the houses at a profit.

The Court held that both the express agreement to cement and the implied agreement in all contracts to do work (unless expressly excluded) in a proper manner had been broken, and as regards the defence of the work having been done to the satisfaction of the surveyor and the sanitary inspector it was held that as there was nothing in the contract to say that their approval was to be final and conclusive that provision was only a superadded protection, nor did the clause which allowed retention of part of the contract price for a certain period interfere with the right to claim damages for defects subsequently discovered: the plaintiffs had been bound in honour and business expediency, if not in law, to remedy the defects, but that was really immaterial as the true principle to be applied was that the plaintiffs must recover as damages the difference between the value of the houses as they ought to have been as completed, and the value of them as they were in fact, and the Court assessed this difference at £350. In the report there was no suggestion of any appeal, but from our contemporary's observation we gather their comment was directed to that portion of the judgment which related to the approval of the surveyor and the sanitary inspector.

We have been unable to find a case exactly on all-fours with the above, but in the fifth edition of "Hudson on Building Contracts," at page 262, the matter is dealt with under the heading, "Defects where Work to Approval of Third Person," to the following effect. It first is stated: "Where work is agreed to be executed to the approval of a third person, *e.g.*, the architect, engineer or surveyor of the building owner, and such third person's approval is a condition precedent to payment, the following rules would seem to apply." Then it is stated if the architect's decision is by the terms of the contract made *final*, no recovery can be had for defects, but if work has to be executed to the approval of the architect and his approval is not a condition precedent, *or not final*, *e.g.*, where it is subject to arbitration (Robbins *v.* Goddard, 1905, 1 K.B. 294), there is nothing to prevent the employer from recovering for defects and breach of contract.

We apprehend that the fact that the person named to give approval is not the surveyor of the building owner, but, as in the case we are considering, is the surveyor of the body granting the subsidy, would be wholly immaterial and the above statement of the law would equally apply. The matter appears to be determined rather by inference from the cases than by a direct decision. Thus, in two cases cited in "Hudson on Building Contracts," in the section we have referred to—Lord Bateman *v.* Thompson (reported in the second volume of the third edition at page 23), and Robbins *v.* Goddard (*ubi sup*), the question was whether where works were to be carried out to the satisfaction of the architect the certificate was conclusive. The first of the above cases was most in point, as there the action was to recover damages for defects discovered some time after the completion of the work, whereas the second case turned on a claim for payment under the contract and a counterclaim for defective work, but in both these cases the question was whether or not the certificate was conclusive. In the first case, the whole contract was considered and the Court of Common Pleas held that the certificate was made conclusive by the terms of the contract, a decision affirmed by the Court of Appeal, while in the second case the Court of Appeal held that the certificate was not conclusive by reason of an arbitration clause, but Lord Justice Stirling so read the contract that, apart from this question, the certificate was not intended to be conclusive, and as the matter had not been referred to arbitration the defendant, the building owner, was entitled to his ordinary legal remedies in the Courts. As we have said above, the inference to be drawn from these two cases appears to be that the approval must be made conclusive if it is to be a bar to an action for defects subsequently discovered, for otherwise the arguments in these two cases would have been unnecessary, and the conclusion is that parties in making their contracts should bear this fact in mind and frame the contract to meet their respective points of view.

A Sheffield Builder's Estate.

Mr. John Dawson Cook (80), of 39, Meersbrook Park-road, Sheffield, builder and contractor, founder and director of the Sheffield Builders' Exchange, a representative of the Heeley Ward on the Sheffield City Council for nine years (net personalty £36,405), left £80,672.

"Electric Motor Management."

Under this title, Mr. A. H. Avery, A.M.I.E.E., has written a guide (London: Percival Marshall & Co., Ltd.; 3s. 6d. net) to the installation, management and maintenance of electric motors which should be of considerable value, not only to students but to factory engineers and power users. So broad is the subject of modern electrical practice that Mr. Avery may be congratulated upon compressing his subject-matter into the small and handy form which this book takes. Well though it is put together, we think that an index would help it still further to achieve the book's object of being for quick reference. Perhaps this slight defect could be put right in a later issue.

NEW BUILDINGS IN LONDON

Addington.—School.—The Croydon E.C. have accepted the estimate of Mr. R. Mansell, Grant-road, Croydon, for the erection of an open-air school at Addington. The tender price is £7,802.

Barking.—Shops.—Fourteen shops with living accommodation over, and 16 garages, are to be built in Longbridge-road, at the corner of Lodge-avenue, for Messrs. Hooker & Rodgers.

Battersea.—Housing.—Mr. E. C. Harris, 3, Bedford-square, W.C.1, has been appointed by the B.C. to prepare quantities for the second (northern) block of tenements on the St. John's College site

Battersea.—Rebuilding.—The "Old Farmhouse" beerhouse, at Doddington-grove, is to be rebuilt to plans by Mr. Joseph Hill, F.R.I.B.A., 34, Gordon-square, W.C.1. No building contract has yet been placed.

Bucklersbury.—Extensions. — Extensions and alterations are to be undertaken at the "Green Man," 7-9, Bucklersbury, E.C., for Messrs. Younger & Co., Ltd., Belvedere-road, S.E.1. Plans have been prepared by Messrs. John S. Quilter & Son, 3, St. James'-street, S.W.1. The contract is in the hands of Messrs. Webster & Cannon, 42, Cambridge-street, Aylesbury.

Cheapside.—Church.—Restoration work is being carried out at the Church of St. Mary-le-Bow. The complete scheme is estimated to cost about £15,500. The architect is Mr. Edgar S. Underwood, F.R.I.B.A., 3, Queen-street, E.C.4. The contract has been placed with Messrs. Dove Bros., Ltd., Cloudesley-place, N.1.

Chelsea.—Flats.—Buildings at No. 4, David-place, S.W.3, are to be converted into flats, for the Chelsea Housing Society. Plans have been prepared by Messrs. A. & J. Soutar, 8, King William-street, W.C.2. The contractors are Messrs. Hill and Gurr, West-street, Bromley.

Church-street, W.8.—Extensions.—A contract for new additional premises for the Rowley Galleries, proposed in Campden-street, Kensington, has been obtained by Messrs. A. E. Syme, Ltd., 1a, Carpenter's-road, E.15. The architect is Mr. G. Alan Fortescue, A.R.I.B.A., 32, Beauchamp-place, S.W.3.

Clapham-road.—Building.—Mr. P. A. Hamilton, L.R.I.B.A., M.I.Struct.E., has prepared plans for the erection of a new building at the rear of 48-52 (even), Clapham-road, S.W. The builders are Messrs. R. L. Stuart and Sons, 194, Lower-road, Rotherhithe, S.E.16.

Croydon.—Extensions.—The Croydon Mental Hospital Committee have recommended the estimate of Messrs. Holland and Hannen and Cubitts, Ltd., of 1, Queen Anne's-gate, Westminster, S.W.1, at £51,702 for the erection of four villa blocks and incidental works at the hospital.

Croydon.—Extensions.—Mr. Ernest Bates, 27, Queen Victoria-street, E.C., is the architect for showroom extensions at 76-78, North-end. Messrs. E. H. Smith, Ltd., 48, Wellesley-road, Croydon, are the builders.

Croydon.—Extension. — Messrs. Bryce, Ltd., 190, London-road, Hackbridge, are erecting factory additions in Purley-way.

Croydon.—Hall.—Mr. T. E. W. Grant, F.R.I.B.A., 11, Buckingham-street, Strand, W.C.2, is the architect for a parish hall to be erected in Kingsley-road.

Croydon.—Additions.—For alterations and additions to 43-45, High-street, Croydon, the architects are Messrs. Gordon and Gordon, Finsbury House, Blomfield-street, E.C.

Ealing.—Alterations.—Alterations are to be carried out at the "Kent Hotel," Scotch Common, Ealing, W. The architect is Mr. Nowell Parr, F.R.I.B.A., 42, Cranley-gardens, S.W.7.

East Ham.—Alterations.—For alterations at 27-29, Plashet-grove, Mr. J. W. Lohden, surveyor, Broad-walk, E.18, has prepared the plans.

East Ham.—Shops.—Messrs. Lee, Dickens & Co., 6, Warwick-court, W.C.1, have prepared plans for the erection of eight shops, with showrooms over, at 1-8, Central-parade, High-street North. We understand that the building contract has not yet been settled.

Highbury. — Building. — Messrs. Hall, Beddall & Co., Ltd., Pitfield Wharf, Waterloo Bridge, S.E.1, have secured the contract for the erection of the new entrance to the Arsenal Football Club's ground, with flats over, in Highbury Hill, N.5, for the Arsenal Football Club, Ltd. The architects are Mr. Claude W. Ferrier, F.R.I.B.A., and Mr. Wm. B. Binnie, F.R.I.B.A.

High Holborn.—Alterations.—Are being carried out at No. 49, the branch premises of the Midland Bank, Ltd. The architects are Messrs. Whinney, Son & Austen Hall, 37, Norfolk-street, W.C.2, and the contractors are Messrs. Henry Kent, Beacon-road, S.E.13.

Holborn.—Reconstruction. — Reconstruction work is to be carried out at Holborn Station, W.C.1, for the Underground Railways Co. Plans by Mr. S. A. Heaps, staff architect, 55, Broadway, London, S.W.1. The contract is in the hands of Messrs. John Cochrane & Sons, Ltd., 38, Victoria-street, Westminster, S.W.1.

Kingston-on-Thames.—Houses.—The T.C. has recommended, at £12,979, the tender of Mr. G. F. Taylor, 300, Northfield-avenue, Ealing, W.13, for the erection of 40 non-parlour type houses.

Ladbroke-grove.—Extensions.—Are to be carried out at the warehouse of Messrs. J. S. Fry & Son, Ltd. The scheme is under the direction of the chief engineer of the G.W.R., Paddington Station, W.2.

Lambeth.—Warehouse.—A new building is to be erected, for warehouse and offices, at a site abutting on the river at Commercial-road, Lambeth, S.E., for Messrs. William Younger & Co., Ltd., Belvedere-road, S.E.1. Plans have been prepared by Messrs. John S. Quilter & Son, 3, St. James's-street, S.W.1. The contract is in the hands of Messrs. Hall, Beddall & Co., Ltd., Pitfield Wharf, Waterloo Bridge, S.E.1.

Lambeth.—Garages.—Twelve garages are shortly to be erected in Milkwood-road, Herne Hill, by Mr. Frank Dale, 264, Milkwood-road. Mr. H. S. Benison, L.R.I.B.A., 34, Hadley-road, New Barnet, has prepared the plans.

Lambeth.—Exchange.—The B.C. has approved plans by H.M.O.W. for the erection of a telephone exchange on a site between 43 and 45, Gresham-road.

Morden.—Pavilion.—A new sports pavilion is to be erected for the "News Chronicle" and "Star" Sports Club. Plans have been prepared by Mr. H. Griffiths, 35, Lancaster road, South Norwood Park, S.E.25. The contractors are Messrs. C. E. Head & Co., 112a, Wellesley-road, Croydon.

Muswell Hill.—Church.—Mr. W. D. Caröe, F.R.I.B.A., 3, Gt. College-street, S.W.1, has prepared plans for a new church for the parish of St. Matthews. No building contract has yet been let.

Nine Elms-lane. — Additions. — Messrs. Whinney, Son & Austen Hall, 37, Norfolk-street, W.C.2, are the architects for the Gas Light and Coke Co., for additions to the workshops and stores at Watson House. The builders are Messrs. William Downs, Ltd., 12, Hampton-street, Walworth-road, S.E.17.

Ponders End.—Improvements.—Alterations and improvements are to be carried out at the "Swan" public-house, 250, High-street, for Messrs. Truman, Hanbury & Buxton, Ltd., 91, Brick-lane, E.1. Plans have been prepared by the company's own staff architect.

Richmond.—Rebuilding.—The "Crown" public-house in Lower Mortlake-road, is to be rebuilt for Messrs. Truman, Hanbury, Buxton & Co., Ltd., 91, Brick-lane, E.1.

Royal Albert Dock.—Alterations.—Are to be undertaken at No. 28 Shed, Roval Albert Dock, for the Port of London Authority. The contract has been placed with Messrs. Walker-Weston & Co., Ltd., 75, Victoria-street, S.W.1 Plans have been prepared by the Chief Engineer to the Authority, Trinity-square, E.C.3.

Stoke Newington. — Premises. — Messrs. Horace V. Clogg, Ltd., builders, Vallance Works, 159-161, Hanbury-street, E.1, are building for Messrs. Truman, Hanbury, Buxton & Co., Ltd., licensed premises to be known as the "Rose and Crown," on a site at the corner of Church-street and Albion-road. The architect is Mr. Arthur E. Sewell, L.R.I.B.A., 91, Brick-lane, Spitalfields, E.1.

Streatham.—Extensions.—Extensions are to be erected at the corner of Larkhall-lane and Union-street for Messrs. S. Frost & Co., Ltd., Larkhall-lane, S.W.4. The plans have been prepared by Messrs. Hal. Williams & Co., 43, Bedford-square, W.C.1, and the contract will be carried out by Messrs. George Parker & Sons, Ltd., 124, Sumner-road, Peckham, S.E.15.

Vincent-square.—Extensions.—A contract has been placed for the first section of the extensions at the Infants' Hospital, Vincent-square, S.W.1. The joint architects are Captain C. Stanley Peach, F.R.I.B.A., 60, Warwick-square, S.W.1, and Mr. E. Stanley Hall, M.A., F.R.I.B.A., 54, Bedford-square, W.C.1. The contract is in the hands of Messrs. Prestige & Co., Ltd., 149, Grosvenor-road, S.W.1.

Westbourne-grove.—Alterations.—To be undertaken at the branch premises for the Westminster Bank, Ltd., 41, Lothbury, E.C.2. Plans have been prepared by Mr. W. A. Forsyth, 12, Stratford-place, W.1.

Whitechapel.—Extensions.—Funds are to be raised for extensions to the London Hospital, including a new electrical department and massage school. The architect is Mr. J. G. Oatley, F.R.I.B.A., London Hospital.

NEW CINEMAS

Atherstone.—The R.D.C. has passed plans for alterations proposed to the "Picturedrome," Atherstone, Warwickshire, for the proprietors, Messrs. J. W. Briggs and H. E. Vero.

Ayr.—Plans are being prepared for a new cinema in Main-street. Mr. John McAlister, solicitor, 65, Bath-street, Glasgow, is connected with the scheme. The architect is Mr. Albert V. Glen, 164, Bath-street, Glasgow.

Eastleigh.—A contract for the reconstruction of and extensions to the Picture House at Eastleigh, Hants, to plans prepared by Mr. W. W. Gandy, F.I.A.A., of Leigh-road, Eastleigh, has been placed with the Pitcher Construction Co., Ltd., 57, Ashburton-grove, Holloway, N.7.

Edgware.—Plans for a cinema at High-street, Edgware, presented by Mr. O. Myers, were approved by the Hendon R.D.C.

Govan.—Plans are being prepared for extensions to the Elder Picture House, Govan, Glasgow. The architect is Mr. Albert V. Gardner, 164, Bath-street, Glasgow.

Leeds.—A new cinema, the "Trocadero," to seat 1,750, is to be erected at Leeds for Mr. F. T. Thompson, proprietor of the Harehills Picture House. Plans have been prepared by Mr. J. P. Crawford, 4, Wormald-row, Leeds.

Loughborough.—Messrs. George Brand, Shepshed, near Loughborough, propose to erect a cinema in Woodgate. The architect is Mr. E. A. Dakin, L.R.I.B.A., 109, Ashby-road.

Stirling.—Plans for a super-cinema in Maxwell-place, Stirling, to be erected by the Associated British Cinemas, Ltd., London, have been passed by Stirling Town Council. When finished the cinema will accommodate 2,000 persons. The staff architect to the company is Mr. W. Glen, Heddon House, Regent-street, London, W.1.

Sunderland.—Plans have now been prepared by Messrs. W. and T. R. Milburn, architects, 19, Fawcett-street, Sunderland, for a proposed new cinema to be built at Grangetown, on the outskirts of Sunderland.

Worksop.—Clayton's Bioscope, 14, Oak-street, Sheffield, are to erect a new cinema to occupy a prominent position. It will have a seating capacity of 1,400. Building operations are to start shortly. The architect is Mr. Harold Shepherd, 87, Fargate, Sheffield.

RATES OF WAGES IN THE BUILDING TRADE

AS AND FROM 1st FEBRUARY, 1931.

[Every endeavour is made to ensure accuracy, but we cannot be responsible for errors.]

	Masons.	Brick-layers.	Carpenters Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Labourers.
Aberdare	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Accrington	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Aldershot	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Alfreton	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/1½
Alnwick	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/2
Altrincham	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	11½
Ashford (Kent)	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/1½
Ashington	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/2
Ashton-under-Lyne	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	11½
Aylsham	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Banbury	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Barnsley	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Barnstaple	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Barrow-in-Furness	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Barry	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Basingstoke	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0½
Bath	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Bedford	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1½
Berwick	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/0
Bexhill	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/3½
Birkenhead	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/2
Birmingham	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/1½
Bishop Auckland	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2
Blackburn	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Blackpool	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	11½
Bognor Regis	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/2
Bolton	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0½
Bournemouth	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Bradford	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	11½
Bradford-on-Avon	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/0
Braintree	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/1½
Brentwood	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	11½
Bridgwater	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/1½
Bridlington	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/0½
Brighton	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Bristol	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/1½
Bromsgrove	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	11
Bromyard	1/2½	1/2½	1/2½	1/2½	1/2½	1/2½	1/2½	10½
Bungay	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Burnley	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Burton-on-Trent	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Bury	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	11½
Bury St. Edmunds	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/1½
Buxton	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Cambridge	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	11½
Canterbury	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/2
Cardiff	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Carlisle	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0½
Chatham	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Chelmsford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Cheltenham	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Chester	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Chesterfield	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Chorley	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	11½
Cirencester	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/0
Clacton	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0½
Colchester	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Coventry	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	10½
Cranbrook	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/1½
Crewe	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	11½
Cromer	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/2
Darlington	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	11½
Deal	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/0½
Denbigh	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Derby	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	11½
Devizes	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/2
Dewsbury	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Doncaster	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	11½
Dorchester	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/0
Dorking	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0½
Dovercourt	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Driffield	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1½
Droitwich	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/2
Dudley	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Durham	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0½
Eastbourne	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1½
E.Glam.(Mon.Val.)	1/6	1/6	1/6	1/6	1/6	1/6	1/6	11½
Ely	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/1½
Exeter	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/0
Exmouth	1/4	1/4	1/4	1/4	1/4	1/4	1/4	11½
Fakenham	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/0½
Felixstowe	1/5	1/5	1/5	1/5	1/5	1/5	1/5	11½
Folkestone	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Frome	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/2
Glossop	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/1½
Gloucester	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/0
Godalming	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/1½
Goole	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/0½
Gosport	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Grantham	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0
Gt. Yarmouth	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0½
Grimsby	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0
Guildford	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Halifax	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Harpenden	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/2
Harrogate	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Hartlepools	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/0½
Harwich	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	11½
Hastings	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/0½
Hatfield	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/1½
Hednesford	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/0½
Hereford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	11½
Herne Bay	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/0½
Hertford	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Hitchin	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Hoddesdon	1/5	1/5	1/5	1/5	1/5	1/5	1/5	10½
Holt	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Huddersfield	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Hull	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	11½
Hunstanton	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Huntingdon	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Isle of Wight	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/0½
Ipswich	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Keighley	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/1½
Kettering	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Kidderminster	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	11½
Kings Lynn	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Lancaster	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Leamington Sp	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Leeds	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Leicester	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Leighton Buzzard	1/3	1/3	1/3	1/3	1/3	1/3	1/3	11½
Lichfield	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/2
Lincoln	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	11½
Littlehampton	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½
Liverpool	1/8	1/8	1/8	1/9	1/8	1/8	1/8	1/0½
Llandudno	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Llanelly	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	
London—								
12 m. radius	1/8	1/8	1/8	1/8*	1/8	1/8	1/7	1/3
12-15 m. radius	1/7½	1/7½	1/7½	1/7½*	1/7½	1/7½	1/6½	1/2½
Loughborough	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Lowestoft	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Luton	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Macclesfield	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/1½
Maidstone	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Malvern	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Manchester	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Mansfield	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Margate	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Market Harborough	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½
Matlock	1/5	1/5	1/5	1/5	1/5	1/5	1/5	10½
Melton Constable	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/1½
Melton Mowbray	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Merthyr Tydfil	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2
Middlesbrough	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Newark	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	11½
Newbury	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/2
Newcastle-on-Tyne	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Newcastle-u-Lyme	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
New Forest	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	11½
Newmarket	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Newport, Mon.	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Northampton	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2
Norwich	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/2
Nottingham	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Nuneaton	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Oakham	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Oldham	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Oxford	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Paignton	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Peterborough	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/1½
Plymouth	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Pontypridd	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2
Portsmouth	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Preston	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Ramsgate	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0
Reading	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Redcar	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Redditch	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/2
Reigate	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½
Retford	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Ripon	1/5	1/5	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Rochdale	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Rochester	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0
Rugby	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Saffron Walden	1/2½	1/2½	1/2½	1/2½	1/2½	1/2½	1/2½	1/2
St. Albans	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/2
St. Helens	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Sawbridgeworth	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/2
Saxmundham	1/2½	1/2½	1/2½	1/2½	1/2½	1/2½	1/2½	1/2
Scarborough	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2
Sevenoaks	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/2
Sheffield	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Shrewsbury	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/2
Sittingbourne	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/2
Southampton	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Southend-on-Sea	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/2
Southport	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
South Shields	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Stevenage	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/2
Stockport	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Stockton-on-Tees	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Stoke-on-Trent	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2
Stourbridge	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/2
Stourport	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/2
Stowmarket	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Stratford-on-Avon	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/2
Stroud	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Sunderland	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Swaffham	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Swansea	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Swindon	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2
Tamworth	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/2
Taunton	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/2
Thetford	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2
Torquay	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/2
Totnes	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/2
Trowbridge	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/2
Tunbridge Wells	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/2
Uttoxeter	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Wakefield	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Walsall	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	11½
Walsden	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/2
Warminster	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Warrington	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/2
Warwick	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Wells (Norfolk)	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/2
Welwyn Gar. City	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
West Bromwich	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/2
Weston-sup-Mare	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/2
Weymouth	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/2
Whitby	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Wigan	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/2
Winchester	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Windsor	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/2
Wisbech	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
Wolverhampton	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/2
Woodbridge	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/5½	1/2
Worcester	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Worksop	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/2
Worthing	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/2
Wrexham	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/2
Wycombe	1/2½	1/2½	1/2½	1/2½	1/2½	1/2½	1/2½	1/2
Wymondham	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2
York								

The rate recognised by the National Association of Plasterers, Granolithic and Cement Workers, as and from the 1st February, 1931, is 1/10½ per hour.

For Building Trade wages in Scotland, see page 568.

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed, that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given is the latest date when the tender, or the names of those willing to submit tenders, may be sent in, the name and address at the end is the person from whom or place where quantities, forms of tender, etc., may be obtained.

Following is a list of abbreviations:—Borough Surveyor, B.S.; Borough Engineer, B.E.; District Surveyor D.S.; Town Clerk T.C.; County Engineer, C.E.; County Surveyor, C.S.; Surveyor, S.; Engineer, E.

BUILDING, PAINTING, ELECTRIC LIGHTING, HEATING, etc.

OCTOBER 5.

Dundee.—Alterations.—Alterations and additions to administrative block at Maryfield Hospital, for Corporation. Official Quantity Surveyor, 91, Commercial-st.

Edinburgh.—Demolition.—Of buildings at rear of 196, Canongate, for T.C. B.E., 329, High-st.

Edinburgh.—Installation.—Plumber work required in connection with heating installation at Craiglockhart Institution, for T.C. E. J. MacRae, A.R.I.B.A., City Architect.

Edinburgh.—Demolition.—Of buildings at 22-38, South Richmond-st., and 139a-159, Pleasance, for T.C. B.E., 329, High-st.

Exeter.—Garage.—Garage, for G.W.R. E., Paddington Station, London, W.2. Dep. £2 2s.

Hornchurch.—Repairs.—To houses of Council at Harold Wood, Abbs Cross-rd., Priors-pk., Princes-pk., Trustons-gdns., Longfield-av., Lower Richmond-st., Osborne-rd., for U.D.C. F. Alderson, S.

Motherwell and Wishaw.—Demolition.—Of buildings of Stenton works, Manse-rd., Marshall-st., for T.C. B.E.

Norwich.—Houses.—Erection of 100 houses at Cotton Grove Estate. Chairman, Housing Committee, Guildhall. Dep. £5.

Rugeley.—Houses.—30 on Hagley-rd. site, for U.D.C. W. E. Rogers, architect. Dep. £2 2s.

Saltcoats.—Exchange.—New telephone exchange for H.M.O.W. Architect, H.M. Office of Works, 122 George-st., Edinburgh. Dep. £1 1s.

Stockbridge.—Cottages.—Two, in parish of Over Wallop, for R.D.C. G. V. Williams, Building Surveyor. Dep. £1 1s.

Tonbridge.—Housing.—22 houses at Downingbury housing site, Pembury, for R.D.C. Frank Harris, E. and S. Dep. £1 1s.

OCTOBER 6.

Bollington.—Alterations.—Pulling down outbuilding and alterations at Bull's Head Inn, Kerridge, for U.D.C. S. Knight, clerk.

Borrisokane.—House.—Dwelling house on lands of Creevagh, about 3 miles east of Borrisokane, Co. Tipperary, for Irish Land Commission. M. Deegan, secretary, Upper Merrion-st., Dublin. Dep. £1.

Cleetherpes.—Pavilion.—On Sussex recreation ground, for U.D.C. L. W. Pye, E. and S.

Egham.—Repair.—To 22 houses, for U.D.C. Buildings Surveyor, 155, High-st.

***Hornchurch.**—Houses.—Longfield-av., for the U.D.C. Clerk, Council Offices, Billett-lane. Dep. £2 2s.

Kenton.—Heating.—Accelerated low-pressure hot water heating at "Wordsworth" telephone exchange, for H.M.O.W. Contracts Branch, H.M. Office of Works, King Charles-st., S.W.1. Dep. £1 1s.

Sandown (I. of W.).—Houses.—Two pairs on Blackpan estate, Lake, for U.D.C. S.

Turriff.—Repairs.—Repairs and alterations on slaughterhouse, for T.C. W. L. Duncan, architect, Turriff.

Winsanton.—Cottages.—Two, at Pitcombe, for R.D.C. Harold N. Alves, architect, 27, High-st., Glastonbury.

OCTOBER 7.

Hinckley.—Houses.—53, in various parishes, for R.D.C. E. H. Crump, F.S.I., Barclays Bank-chams., Hinckley. Dep. £3 3s.

Kingston-upon-Hull.—Heating.—Low pressure hot water heating installation and a domestic hot water supply apparatus for proposed completion of Endyke estate school, for T.C. D. Harvey, A.R.I.B.A., City Architect. Dep. £1 1s.

Muswell Hill.—Cottages.—Pair of, for the Hornsey T.C. Town Clerk, Town Hall, Highgate, N.6. Dep. £2.

Nottingham.—Painting.—Cleaning and repainting of (a) Newark bridge over River Trent on Great North-rd. at Newark-on-Trent; (b) Borough Bridge, over River Idle, Bridgegate, Retford; (c) Albert-st. Bridge, over River Idle, Albert-st., Retford, for C.C. J. Cracroft Haller, C.S., Nottingham.

OCTOBER 8.

Forest Gate, E.—Public Baths.—For West Ham C.B. Town Clerk, Town Hall, West Ham, E. Dep. £1.

London.—9 Houses.—For Greenwich B.C. Town Clerk, Town Hall, Greenwich, S.E.10. Dep. £1 1s.

Weymouth.—Rifle Range.—Miniature rifle range adjoining Bincleaves Barracks, for Dorset Territorial Army Association. F. T. Maltby, architect, Dorchester.

OCTOBER 9.

Wednesbury.—Houses.—Bilston-rd. site, 56 non-parlour type houses; Bilston-rd. site, 2 parlour type houses; and Longcroft site, 30 non-parlour type houses, for T.C. A. Booth, B.E. and S. Dep. £2 2s.

OCTOBER 10.

Benfleet.—Hall.—Erection of Benfleet church hall. A. G. Millns, architect, High-st., Canvey Island.

Harrogate.—Building.—New ladies' cloakroom, Royal Baths, for T.C. C. E. Rivers, B.E. and S.

Marple.—Wiring.—Electric lighting and power installations, for U.D.C. J. K. Law, Electricity Manager, Council Offices. Dep. £1.

Oldham.—Building.—New engine and pump house, and new meter house, at Higginshaw gas works, for C.B. F. Greenhalgh, Engineer and Works Manager. Dep. £5 5s.

OCTOBER 12.

Arklow.—Extensions.—To existing hospital at Arklow, new laundry and sanitary annexe, together with all incidental works, at Countess of Wicklow Memorial Hospital, for Council. E. M. Murphy, consulting engineer, 27, Molesworth-st., Dublin. Dep. £5 5s.

Bristol.—Heating, etc.—At new public baths at Park-rd., Shirehampton, for T.C. Josiah Green, T.C. Dep. £2 2s.

Dewsbury.—Houses.—20 houses at Field-lane, Ravensthorpe, for C.B. Borough Architect and Surveyor. Dep. £1 1s.

Dromore (Ireland).—Houses.—14, at Gallows-st., for U.D.C. Hobart & Heron, architects, 120, Scottish Provident-bldgs., Belfast.

Merthyr Tydfil.—Offices.—New offices and depot at Castle-st., for Taf Fechan Water Supply Board. R. S. Griffiths & Partners, Board's Architects, Tonypandy, Rhondda. Dep. £3 3s.

Newbridge (Mon).—Warehouse.—For Jones & Porter, Ltd. D. J. Thomas, L.R.I.B.A., architect and surveyor, York-chambers, High-st., Blackwood, Mon. Dep. £2 2s.

Nottingham.—Dock.—Dock, warehouse, and other works in connection therewith at Trent-lane Wharf, Nottingham, for Trent Navigation Committee of T.C. W. J. Board, T.C. Dep. £2 2s.

Peterborough.—Shelter.—Public shelter, etc., on car park site, Bishop's-rd., for T.C. W. H. A. Court, City E. and S., Broadway. Dep. £3 3s.

Runcorn.—Conversions.—Of 15 pail closets to water-carriage system in parish of Grappenhall, for R.D.C. E. and S.

***Southampton.**—Depot.—New joiners' workshop at Corporation depot, Shirley, for C.B. B.E., 33, French-st.

OCTOBER 13.

Bedford.—Offices.—Offices, stores, workshops, cartsheds, etc., alterations to buildings, and incidental work at various Corporation Depots, for T.C. N. Greenshields, B.E. and S. Dep. £3 3s.

Cleethorpes.—Extensions.—Laying of sewer in Queen's-parade and Taylor's-av., and extension of Council Offices, for U.D.C. L. W. Pye, E. and S.

Harrow.—Floor.—New first floor at H.M. Stationery Office Press, Wealdstone, Harrow, for H.M.O.W. Contracts Branch, King Charles-st., S.W.1. Dep. £1 1s.

Northfleet.—Houses.—For the U.D.C. Clerk, Council Office. Dep. £5.

OCTOBER 14.

Galway.—Houses.—12, at Galway, for Irish Sailors' and Soldiers' Land Trust. W. J. Brown, F.R.I.B.A., 50, Upper Mount-st., Dublin. Dep. £3 3s.

Swansea.—Houses.—On the Mayhill estate. Town Clerk, Guildhall. Dep. £3 3s.

OCTOBER 15.

Belfast.—Alterations.—To premises of Saintfield Academy public elementary school, for Down County Regional E.C. C. J. Love, architect, 5, Wellington-place, Belfast.

Southwell.—Painting.—Cleaning and painting whole of steel water tower at Ollerton, for R.D.C. Sands & Walker, consulting engineers, Milton-chams., Milton-st., Nottingham.

OCTOBER 16.

Barnstaple.—Housing.—Tenders are invited for the erection of 8 at West Down and 6 at Georgeham, for R.D.C. Harold Hargreaves, Building Surveyor. Dep. £1 1s. each.

OCTOBER 19.

Rotherham.—Houses.—27 houses of varied types in Bramley parish, for R.D.C. A. E. Lant, E. and S. Dep. £2 2s.

Wem.—Houses.—5 houses, together with laying of necessary sewer, water main, and road near recreation ground, for U.D.C. F. Morcom, S. Dep. £1 1s.

OCTOBER 20.

***Pagham, Bognor Regis.**—Telephone Exchange.—For H.M.O.W. Contracts Branch, King Charles-st., London, S.W.1. Dep. £1 1s.

Sheffield.—Houses.—252 non-parlour type, on Shiregreen estate; part 3 (building scheme No. 2), for T.C. W. Geo. Davies, F.R.I.B.A., City Architect. Dep. £2.

OCTOBER 22.

Stourbridge.—Houses.—126 non-parlour houses on Forge Hill Fields, off Enville-st., and 60 non-parlour on Enville-st. site, together with new streets with foul and storm water sewers, manholes, etc., for T.C. F. Woodward, B.S. Dep. £3 3s.

OCTOBER 24.

***Romford.**—Additions and alterations.—To the Nurses' Home, for the Essex C.C. County Architect, County Hall, Chelmsford. Dep. £2 2s. to the County Accountant.

NOVEMBER 11.

Egypt.—Station.—An electric power station distribution system and waterworks plant for the town of Tahta, for Ministry of Interior, Cairo. Department of Overseas Trade, 35, Old Queen-st., London, S.W.1. (Ref. A.X. 11,093.)

NO DATE.

Shawforth.—Painting.—Exterior of Shawforth Co-operative Society's central and branch premises. Secretary.

MATERIALS, etc.

OCTOBER 7.

Rochdale.—Pipes.—4,200 yds. of cast-iron spigot and socket pipes, 21 in. dia., for T.C. Wm. Henry Hickson, T.C.

OCTOBER 8.

Dewsbury.—Pipes.—Cast-iron pipes and specials, for C.B. H. L. Bateman, Engineer and Manager, Gas Department, Savile Town.

OCTOBER 12.

Hertford.—Granite, etc.—For T.C. B.S. and E.

OCTOBER 19.

Oldham.—Cement.—For C.B. B.E. and S.

NOVEMBER 2.

Singapore.—Pipes.—Galvanised-iron fittings, cast-iron straight pipes and galvanised wrought-iron pipes, for Municipality. Dept. of Overseas Trade, 35, Old Queen-st., S.W.1. (Ref. G.X.10721.)

ENGINEERING, IRON AND STEEL.

OCTOBER 6.

Purfleet.—Sewerage.—At Aveley, for U.D.C. John L. Davies, E. Dep. £2 2s.

Sandown, I. of W.—Pumphouse.—Construction of a low lift pumphouse at the waterworks pumping station, for the U.D.C. Surveyor, Town Hall, Sandown.

Sandown.—Steelwork.—Steelwork necessary for support of reinforced concrete roof over clear water basin at waterworks pumping station, for U.D.C. S.

OCTOBER 8.

Pershore.—Water Supply.—Construction of about 24 miles of 7 in., 6 in., 5 in., 4 in. and 3 in. water mains and reservoir, together with other incidental works, for R.D.C. Willcox & Raikes, engineers, 33, Great Charles-st., Birmingham. Dep. £5 5s.

OCTOBER 12.

Basford.—Conversion.—Closet conversion schemes at Brinsley and South Wilford, for R.D.C. Stephen Maylan, E. and S. Dep. £2 2s.

Great Ouseburn.—Borehole.—Sinking borehole and testing output, for R.D.C. Silcock & Simpson, engineers, 25, Victoria-st., Westminster, S.W.1. Dep. £5.

OCTOBER 14.

Chester.—Extension.—Of sewage disposal works, for T.C. C. Greenwood, City S. Dep. £2 2s.

OCTOBER 15.

Egypt.—Waterworks.—Installation of a waterworks at Beni-Mazar. Department of Overseas Trade, 35, Old Queen-st., London, S.W.1.

OCTOBER 16.

Eastry.—Drainage.—Two settlement tanks, one storm water tank, two filter beds, two humus tanks, three sludge beds and a pumping station, together with other works, at Aylesham, for R.D.C. John Taylor & Sons, engineers, Caxton House, Westminster, S.W.1. Dep. £5.

OCTOBER 17.

Pricking.—Reconstruction.—Of Pricking Bridge, which carries Valley-rd. and Windhill over the site of Old Bradford-canal, Shipley, for West Riding C.C. West Riding Surveyor, County Hall, Wakefield. Dep. £1

Walshford.—Reconstruction.—Of Walshford bridge, for West Riding C.C. West Riding Surveyor, County Hall, Wakefield. Dep. £1.

OCTOBER 19.

Shipston-on-Stour.—Reservoir.—Reservoir, and for laying of some six miles of 3-inch and 4-inch cast-iron pipe lines and incidental works from the reservoir to Halford, Oxhill and Whatcote, for R.D.C. Dodd & Watson, MM.Inst.C.E., Wellington House, Bennett's-hill, Birmingham. Dep. £2.

OCTOBER 26.

Koussieh.—Water Supply Works.—At the town of Koussieh, involving (a) the construction of a building to house the machinery for raising the water from an artesian well and to serve as foundation for a water tower; (b) installation of a 30-h.p. internal combustion engine; (c) a centrifugal pump with a capacity of 20 litres per second, erected at the head of the well; (d) repair shop equipment; (e) an artesian well of steel piping with an internal diameter of 250 mm. and having a depth of

70 metres; (f) the necessary bearings and friction coupling between the motor and pump, gearings, etc.; (g) a tank of 150 cubic metres capacity erected on a steel tower; (h) the necessary piping for the water tower and the pump; and (i) the necessary piping for the supply of water to the town of Minchia, for Egyptian Ministry of the Interior. Further particulars at the Department of Overseas Trade, 35, Old Queen-st., London, S.W.1. (Ref. G.X. 10669.) Tenders to Cairo by October 26.

DECEMBER 15.

New Zealand.—Towers.—270 galvanised steel transmission line towers, complete with arms, ground stubs and accessories, for Public Works Dept. Dept. of Overseas Trade, 35, Old Queen-st., S.W.1. (Ref. G.X. 10703.)

ROAD, SEWERAGE, AND WATER WORKS.

OCTOBER 5.

Hipperholme.—Paving.—In Kirk-lane and Wood-lane, for U.D.C. Wm. Hepworth, S.

Walton-on-Thames.—Making-up.—Of Clarence-rd. for U.D.C. R. Wilds, E. and S. Dep. £1 1s.

OCTOBER 6.

Bentley-with-Arksey.—Roads.—Roads and surface water drains on proposed housing site in Arksey-lane, Bentley, for U.D.C. P. C. Woodhall, E. and S. Dep. £1 1s.

Esher and the Dittons.—Making-up.—Of Riversdale-rd., Thames Ditton, for U.D.C. L. V. S. Watson, clerk. Dep. £3 3s.

OCTOBER 7.

London.—Paving.—Forming and paving of portion of Eastbrook-rd. which extends southwards from Hervey-rd., for Greenwich B.C. B.E. and S.

Maldon.—Paving.—Paving and kerbing footways (a) on north side of High-st. from police station to Market Hill corner; (b) on north side of High-st. from Crown-lane to gasworks, and on south side of High-st., from Wantz-rd. corner to Fairfield Chase, for T.C. B.E.

OCTOBER 8.

Chipping Wycombe.—Making-up.—Of Mill End rd., for T.C. T. J. Rushbrooke, B.S. Dep. £2 2s.

Leeds.—Paving.—Kerbing, flagging, tar paving Green Hill-lane (part 1), Green Hill-lane (part 2), St. Ives-grove, Back St. Ives-mount, Dalton-av., Cross Flatts-row, for T.C. Highways Engineer, 135, Kirkstall-rd. Dep. £1 1s.

Luton.—Making-up.—Of Letchworth-rd. (220 lin. yds.), for T.C. J. W. Tomlinson, B.E., 12, Upper George-st. Dep. £1 1s.

Watford.—Incision.—Of wash-out from rising main, Holywell Farm, for T.C. W. W. Newman, A.M.Inst.C.E., B.E. Dep. £2 2s.

OCTOBER 10.

Broadstairs and St. Peter's.—Resurfacing.—Charlotte-st. and York-st., for U.D.C. Howard Hurd, S

West Mersea.—Main.—Steel rising main and compressed air pipes in borehole at West Mersea waterworks, for U.D.C. S.

OCTOBER 12.

Brentford and Chiswick.—Sewer.—Roads and sewers on site of new burial ground, Great Chertsey-rd. and Staveley-rd., Chiswick, for U.D.C. E. Willis, E. and S. Dep. £2.

Brentford and Chiswick.—Roads.—Completion of roads on site of housing scheme, Syon estate, London-rd., Isleworth, for U.D.C. Edward Willis, E. and S. Dep. £2.

Rayleigh.—Making-up.—Of Queen's-rd., for U.D.C. H. Cleator Cowen, E. and S. Dep. £2 2s.

Southampton.—Making-up.—Of Beech-av. (part of), Juniper-rd., Claremont-rd., Phillimore-rd. (second part), Monastery-rd. (part of), Chessel-av. (part of), Westfield-rd., Lansdowne-rd., South Mill-rd., for C.B. B.E., 33, French-st. Dep. 10s. 6d. each.

OCTOBER 13.

Fife.—Road.—South approach road in connection with Kincardine-on-Forth bridge, for Joint Committee of County Councils of Fife, Stirling and Clackmannan. Sir Alexander Gibb & Partners, Queen Anne's Lodge, Westminster, S.W. Dep. £5 5s.

Kent.—Roads.—Construction of a new highway 30 ft. width with 30 ft. (all concrete) carriageway from the Canterbury-Whitstable-rd., A.290, at Wraik-hill, Whitstable, to join with the Canterbury-Herne Bay-rd., A.291, at Eddington-Herne Bay, a distance of 5.4 miles. Also the construction of a reinforced concrete bridge over the Southern Railway at South-st., Whitstable, for Kent C.C. County Surveyor's Office, St. Peter-st., Maidstone. Dep. £20.

Kent.—Roads.—Widening and improvement of approximately 1,433 yds. of section of Perry-st., Chislehurst, from Shepherd's Green to junction of Sidcup By-pass London-Folkestone-rd A.20, for C.C. H. T. Chapman, C.S., St. Peter-st., Maidstone. Dep. £5.

Kent.—Road.—Widening and improvement of section of London-Folkestone-rd. from junction of road to Nackholt to junction of road Court-at-Street, Sellindge, for C.C. H. T. Chapman, C.S., St. Peter-st., Maidstone. Dep. £10.

Larkfield.—Roads.—Widening and improvement of approximately 3.67 miles for the section of the London-Folkestone-rd. from the junction of the road to Offham to the junction of the West Malling-rd., B.2016, at Larkfield, for Kent C.C. C.S., St. Peter-st., Maidstone. Dep. £10.

PROPOSED NEW BUILDINGS AND OTHER WORKS*

In these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations: T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; B.C. for Borough Council; P.C. for Parish Council; M.H. for Ministry of Health; M.T. for Ministry of Transport; C.B. for County Borough; B. of E. for Board of Education; M.W.B. for Metropolitan Water Board; Borough Surveyor, B.S.; Borough Engineer, B.E.; District Surveyor, D.S.; Clerk, C.; Town Clerk, T.C.; County Engineer, C.E.; County Surveyor, C.S.; Surveyor, S.; Engineer, E.

Aberdeen.—Plans passed:—additions at 21, Rubislaw Den South, architect, T. Scott Sutherland, 233, Crown-st., Aberdeen; alterations at Balnagask-rd., architect, W. E. Gauld, 19, Diamond-st., Aberdeen; garage at Carnegie-crescent, architect, E. L. Sutherland, 154, Union-st., Aberdeen; public conveniences between Justice Mill-lane and Union-glen.

Ambleside.—S. to prepare plans for proposed new lavatories at Rothay-pk. Also alterations to lavatories at public offices.

Auchinairn.—Lanarkshire C.C. to have plans prepared for 56 houses for Auchinairn District and County. Architect, P. Smith, County Offices, Clydesdale-st., Hamilton.

Aylesbury.—T.C. approved: Ten houses, Tring-rd., S. C. Southam; alterations, showrooms, Walton-st., Cogger & Hawkins.

Barking Town.—U.D.C. approved: dwelling houses, Alfred's-way, for A. J. Maffey; factory, Alfred's-way, for Scoffin & Wilmott (Eastern Construction Co.); extension to Tangent Works (P. C. Henderson, Ltd.), Abbey-rd., for S. Waghorn; offices and 6 shops, with living accommodation, East-st., for Glenny; accommodation road around site for 17 shops, Lodge-av., for L.C.C.; new office, and alterations and additions to existing buildings, Jenkins-lane, for Gross, Sherwood & Heald, Ltd.

Belper.—Vicar, Rev. A. G. Forbes-Fletcher, and members of St. Peter's Church propose church hall an institute on Green-lane and Chesterfield-rd. Architect, L. Smith, The Lodge, Chesterfield-rd.

Billingham.—Catholic Authorities propose school and temporary church. Rev. E. Connell, P.P.

Birkenhead.—E. M. Davies, 15, Conville Boulevard, Higher Bebington, near Birkenhead, proposing to lay out land off King's-lane and Princess Boulevard, Higher Bebington, for housing site and to erect houses thereon.

Blaydon-on-Tyne.—Scheme for sewerage disposal works at Rowlands Gill to be submitted to M.H. by U.D.C.

Blyth.—T.C. approved: 4 houses, Barrass-av., Pattison & Hush.

Bolton.—Catholic Authorities propose permanent chapel at Tonge Moor. Rev. J. O'Dwyer, P.P. Architect, H. Greenhalgh, 15, Mawdesley-st.

Bramhall.—Building Committee of Congregational Church, Bramhall-lane, propose extensions to church and new church hall in Bramhall-lane. Plans by B. Waterhouse, F.M.S.A., Stand Lodge, Bramhall-lane.

Broughty Ferry.—Plans prepared for new garage at Panmuir-ter. Architect, T. L. Gray, 2, India-st., Dundee; residence for T. Anderson, at Claypots-rd., architect, T. L. Gray, 2, India-st., Dundee; alterations at King-st., architect, T. L. Gray, 2, India-st., Dundee.

Brownhills.—Council recommended that tenders be advertised in respect of the further 50 houses which M.H. sanctioned.—Plans approved: senior mixed schools, Shelfield, for Staffordshire C.C.; "Turf Inn," Watling-st., for Holt Brewery Co.

Cardiff.—E.C. propose school at Llanishen at £2,000.

Dublin.—Holles-st. Maternity Hospital has acquired two splendid old mansions in Merrion-sq., which are to be demolished and new hospital erected on site. W. H. Bryne & Son, architects.

East Ham.—C.B. instructed B.E. to prepare quantities and invite tenders for extension to central baths.—B.E. to redecorate weights and measures office at £200.—Plans for proposed new pavilion at Hart's Sanatorium, Woodford Green, been prepared by B.E., and estimate at £10,500.—Heating chamber and shed, St. Nicholas estate, Whitta-rd., for London Co-operative Society, per A. Hulbert; factory adjoining 50, Shaftesbury-rd., H. W. Binns; garage, between 78-80, Cotswold-gdns., Loder & Gibbons.—For repairs to river walling at Little Ilford, Council recommend £200.

East Kilbride.—Plans being prepared for reconstruction and additions at Farmhouse. Architects, Lennox & McMath, 103, Bath-st., Glasgow.

Edinburgh.—Plans prepared for J. Stewart McLachlan's trustees for scheme at 11, Duke-st. Architect, T. Forbes Maclennan, 7, South Charlotte-sq., Edinburgh.

Edmonton.—U.D.C. contemplated purchase of land on Churchfields for housing.

Exeter.—Housing Committee report application by Exeter Workmen's Dwellings Co., for loan in respect of 12 houses at Wykes-rd., and 13 at Foxhayes.

Gateshead-on-Tyne.—T.C. received sanction to borrow £13,984 for Whinney House open-air school.—S. H. Lawson, Emerson-chams., Newcastle, prepared plans for alterations and improvements to "Duke of Cumberland" hotel.

Glasgow.—Plans prepared and Council have agreed to additions at 173 and 187, Trongate, and 7, Stockwell-st. Thomas Somers, C.E.

Hailsham.—C.C. informed R.D.C. that they had agreed to purchase land, adjoining Grovelands-rd., as site for a new council school.

Hendon.—Council approved: 4 houses, Protheroe-gdns., W. F. Thorpe; 8 flats and garages, Selborne-gdns., C. W. B. Simmonds; 4 houses, Hendon-way, B. Gasson; 4 houses, Parkside, F. Parvin, Ltd.; 70 houses, Uphill-grove, W. F. Thorpe; 28 houses and garages, Cloister-gdns., W. F. Thorpe; 24 houses, Aberdare-gdns. and Devonshire-rd., Mill Hill Homesteads, Ltd.; 92 houses, Broadfields-av. and Windsor-av., Quality Contracts, Ltd.; 8 houses, Hillside-gdns, E. T. Adams; 8 houses, Selvage-lane, E. T. Grummant; 12 houses, Walmington Fold, F. J. C. Ingram.

Hebburn-on-Tyne.—Durham C.C. seeking site for relief offices. Wm. J. Merrett, 43, Old Elvet, Durham, C.S.

High Wycombe.—T.C. approved: Extension, West Wycombe-rd., J. T. Wade & Son; factory, West End-rd., C. F. Lord; 12 houses, White-close, W. H. Whyatt; additions, Harlow-rd., St. Augustine's Elementary School; club premises, Queen Victoria-rd., Liberal Association.

Holyhead.—T. Ed. Thomas, L.R.I.B.A., Central-chams., Market-st., prepared plans and lay-out for 27 houses on housing site, for U.D.C.

Hoole.—U.D.C. propose 16 parlour and 106 non-parlour type houses on land off Hoole-lane. W. Dean, S.

Hurworth-on-Tees.—Plans approved for school for 240 children to be erected by Durham County E.C. Architect, F. Willey, 34, Old Elvet, Durham.

Kirkby Stephen.—Public Assistance Committee propose alterations at Kirkby Stephen Institution. Plans by Malcolm Shaw, L.R.I.B.A., 45, Highgate, Kendal.

Lancaster.—Building Committee of Brotherhood propose hall in China-st.

Leeds.—Tenders invited for additions to St. Margaret's Home in Clarendon-rd.—Plans prepared for reconstruction of property in Park Cross-st. by Kitson, Parish, Ledgard & Pyman, architects. Tenders invited.

Leek.—E.C. propose senior boys' Council school and a senior girls' Council school, providing accommodation for 400 scholars in each school.

Leigh.—Pithead baths to be erected by Wigan Coal Corporation for 120 at Parsonage Pits, Leigh.

Lindsey.—E.C. propose alterations to Council school at Toynton All Saints'. Plans by Henry G. Gamble, F.R.I.B.A., Bank Street-chams., Lincoln

Littleborough.—Trustees of Hollingworth School proposing extensions to school buildings. Plans by A. Travis, L.R.I.B.A., Union Bank-chams., King-st., Rochdale.

Liverpool.—Plans passed:—4 houses, North-drive, Wavertree, R. Owens & Son, for Jones & Williams; 6 houses, Danescourt-rd., E. Russell-Taylor & Son, for R. Jones; 8 houses, Aigburth-rd., cr. of Larkfield-rd., T. Wainwright & Sons, for I. Davies & Sons; 8 lock-up shops, assembly hall and library, Prescot-rd., addition to school, Willesbourne-rd., alteration to school, Upper Park-st., and new school, Abingdon-rd., for Corporation; shop store premises, 59/59a, Walton-vale, F. W. Woolworth & Co., Ltd.; new church, Pinehurst-av., cr. of Pinehurst-rd., B. A. Miller, for Rev. J. Howard Foy; reconstruction of premises, Brazenose-rd., W. T. Clarke, for Brooke, Bond & Co., Ltd.; 14 houses, Childwall Priory-rd., T. Jones; 8 houses, Finvoy-rd., Clubmoor, R. Owens & Son, for Murray & Fowler; 16 houses, 2 new roads off Beaconsfield-rd., S. A. Kelly, for J. Hughes; showroom, 3 lock-up shops and billiards hall, Myrtle-st., H. L. Beckwith, for New Hope Hall Cinema, Ltd.; chapel, Lance-lane, Wavertree, "Convent of the Cenacle," J. E. Farrell, for Revd. Mother; alteration and addition for church, Mill-lane, cr. of Long-lane, Cyril Whitehead, for Committee; alteration and addition, Borax-st., F. E. Badger, for Liverpool Borax Co., Ltd.; alteration and addition to premises, Gildart-st. and Audley-st., R. O. Jones, for T. J. Hughes; addition to factory, Longmoor-lane, Fazackerley, Campbell & Turner, for Nelson Preserving Co., Ltd.; electric sub-station, Love-lane, Kennedy & Donkin, for Central Electric Board; 12 houses, Valencia-rd., Wavertree, R. Owens & Son, for J. Williams; store building, Rice-lane, New Liverpool Rubber Co., Ltd., for Macintosh Cable Co., Ltd.; electric sub-station, Longmoor-lane, for Corporation; 4 houses, Lynnbank-rd., A. E. Shennan, for J. Thomas; large addition to works, Hartley-av., F. W. Nicholson, for W. P. Hartley, Ltd.; 4 houses, Menlove-av., cr. of Vineries, H. C. Davies, for Pierce Williams & Son; 20 houses, Cleveley & Clandon-rds., E. M. Bellis, for Amalgamated Properties, Ltd.; 12 houses Eaton-rd., 8 houses Newrd., 10 houses Town-row, 28 houses Oxford-drive, and 22 houses St. Mary's-close, Brown & Sanders, for J. R. Ruddock & Co.; kinema, Green-lane, cr. of West Derby-rd., A. E. Shennan, for Carlton Entertainments, Ltd.; additions and alterations, College-st. North, and Back College-st., for Corporation; 54 houses, Dundale-rd., and 27 houses, Blackhorse-lane, A. E. Shennan, for W. I. Jones; office building, 31, Mersey-st., F. H. Porter; store and garage, Regent-st., Weightman & Bullen, for C. C. Wakefield & Co.

London (Lewisham).—B.C. approved: W. J. C. Kane, houses and flats, High-st., Sydenham; J. P. Briggs, building corner of High-rd., Lee, and Old-rd.; R. Mansell, drain school, church hall

*See also List o. Contracts, Competitions, etc.

and house, Moorside-rd.; H. Macintosh, 22 houses, Westwood-pk.—Council recommend substitution of oak panelling for terrazzo marble finish in main hall of new town hall.

London (Poplar).—L.C.C. proposing to widen eastern end of Bow-rd.

Mablethorpe.—Proposal of Leicester Poor Boys' and Girls' Summer Institute is to erect new buildings.

Manchester.—Board of Management of Dental Hospital, Oxford-rd., propose enlargements to buildings.

Mansfield.—Miners' Welfare Committee propose pithead baths at Creswell Colliery.

Market Bosworth.—R.D.C. approved: 4 houses, Stapleton, A. Wilson.

Mexborough.—U.D.C. propose to acquire land for additional housing scheme. G. F. Carter, S.

Middlesbrough.—T.C. approved: Extensive additions at the Newlands Convent, Abingdon-rd., Newlands Convent; alterations and additions at house, Gloucester-st., at rear of motor works, Grange-rd., corner of Gloucester-st., Councillor J. W. Nesham; 5 houses, Mulgrave-rd., Mr. & Mrs. Ward; warehouse, Norton-st., north side, near Linthorpe-rd., A. Thompson; 8 houses, Belle Vue-rd., T. Pearson.

Minehead.—U.D.C. approved: Alcombe Hall trustees, for new wing to hall.

Mount Florida.—Plans prepared for extensive clubhouse for Mount Florida Bowling Club, Mount Florida, Glasgow. Architect, R. Ewan, 39, Hope-st., Glasgow.

Newcastle-on-Tyne.—City Council approved that Lower Condercum House and grounds be purchased at £7,000 for conversion into school for mental defectives.—Plans approved by T.C. for electric power sub-station near Victoria-rd., for Electric Supply Co. Merz & MacLellan, architects, Carliol House.—W. Riddle, architect, 53, Denham-ter., Wallsend, prepared plans for alterations to premises of Hadrian Supply Co., Shields-rd.—S. J. Stephenson, architect, 2, Saville-place, prepared plans for social club in Westgate-rd.—Contract not yet been placed for garage for Howe & Co., Sandiford-lane. Architect, S. J. Stephenson, 2, Saville-place.—Garage in Roseberry-crescent, for Scott & Co., Oxford-st.—Plans completed by Cackett, Burns, Dick & McKellar, Ellison-place, for rebuilding premises in Prudhoe-st., for Poor Children's Holiday Association.—Contract not yet been placed for improvements to "Duke of Argyle" hotel, Argyle-st. Architect, S. H. Lawson, Emerson-chams.

North Shields.—M.H. sanctioned borrowing of £22,196 by Tynemouth T.C. for purchase and adaptation of premises at Clifford's Fort and Low Lights.

Northumberland.—County E.C. to submit following proposed works to B. of E. for approval: New schools at Bedlington, Cramlington, East Chevington, Earsdon, and Hexham. Plans prepared by County Architect, W. W. Tasker, F.R.I.B.A., 17, Claremount-place, Newcastle-on-Tyne.

Nuneaton.—Urmston Methodist Authorities propose church at Stoke Golding.

Orrell.—U.D.C. to acquire land, Park-rd., for houses. P. Pigot, S.

Osmondthorpe.—Leeds Industrial Co-operative Society, Ltd., to build branch stores on Selby-rd. housing estate.

Paisley.—Plans passed for extension of Williamsburgh public school. Architects, C. Davidson & Son, High-st.

Pontefland.—Castleward R.D.C. approved plans for building estate in Kenton-lane.

Preston.—T.C. approved: W. Smirk & Sons, 12 houses, Fairfield-av.; A. Bamford, 8 houses, Mayfield-rd.; F. Howarth, 6 houses, St. George's-rd.

Pwllheli.—Rev. L. Cunningham, St. Joseph's Church, Church-st., proposing Catholic church on Morfa Lodge estate. Architect, Signor Rinvolucri, Bryn, Conway.

Retford.—Conservative Club propose to acquire Holly Mount, London-rd., for conversion into new headquarters.

Rochdale.—E.C. propose alterations to Spotland Council school. Plans by B.E. and S.

Rochester.—T.C. approved: Seven cottages, Wickham-st., Kidwell & Son; 4 houses, Prospect-av., W. E. R. Randall & Sons; 6 houses, Wallace-rd., H. W. Bowman; alterations to premises, 67, Cuxton-rd., Rochester Co-operative Society, Ltd.; terrace of 4 houses, City-way, W. E. R. Randall & Sons.

Rosneath.—Plans prepared for extensions to Dumbartonshire Church of Scotland at Rosneath. Architect, J. Jeffrey Waddell, 95, Bath-st., Glasgow.

Rotherham.—Duncan Gilmour & Co., Ltd., Dixon-lane, Sheffield, proposing to rebuild "Chequers Inn" public-house, Whiston. Plans by D. B. Jenkinson, architect, Imperial-bldgs., Rotherham.

Scarborough.—T.C. is to make application to Unemployment Grants Committee for loan in respect of extensions to North Bay Promenade to cost £30,740. Plans by S.

Seaham Harbour.—Site been purchased and plans prepared for junior school for 336 children to be built by Durham County E.C. Plans by F. Willey, 34, Old Elvet, Durham.

Sheffield.—Members of St. Polycarp's, Malin Bridge (Vicar, Rev. Harry Boyes), propose church at junction of Loxley New-rd. and Wisewood-lane, at £6,000. Architect, H. J. Potter, A.R.I.B.A., of Fowler, Sandford & Potter, 8, St. James'-st.

South Shields.—Extensions to premises of W. G. Rippon & Co., Back Denmark-st. Howard Hill, L.R.I.B.A., architect, 10, Winchester-st.

Stockport.—E.C. propose elementary school at Adswood and a secondary school for boys in Mile End district.

Stoke-on-Trent.—T.C. approved: C. Kearton, Chell Green-av., Chell, 6 houses; H. Brereton, Greenbank-rd., Tunstall, 6 houses; J. M. Dimbleby, Ford-st., Basford, 6 houses; E. A. Bird, off Bucknall New-rd., Hanley, 12 houses; Holloway & Co., Hartshill, 8 houses; City of Stoke-on-Trent Electricity Dept., Brownhills, Tunstall, sub-station; Trust Houses, Ltd., "Grand Hotel," Hanley, alterations; Stoke Football Club Co., Ltd., Boothen Old-rd., Stoke, extension to stand; Prestwood Bros., Blurton-rd., Blurton, 8 houses and septic installation for 14 houses.

Stroud.—R.D.C. obtained site in Gloucester-st., Painswick, for housing.

Therne.—R.D.C. proposing additional houses on Sykehouse Glebe estate. H. Plews, S.—J. Blythe Richardson, L.R.I.B.A., 26, Printing House-st., Doncaster, is architect for church off Field-rd., Stainforth, for Church of England Authorities.

Thornton.—Plans prepared for new locomotive sheds for the L.N.E. Rly. Architects, Railway's Engineering Staff and Offices, Waterloo-place, Edinburgh.

Tottenham.—U.D.C. to apply for sanction to £53,384, for senior and an open-air school in Lordship-lane.

Tynemouth.—Hays & Gray, 50, Camden-st., North Shields, preparing final plans for school for E.C.

Wakefield.—Catholic Authorities proposing church in Lupset area.

Warsop.—U.D.C. proposing Council offices, welfare centre and library. B. C. Westwick, S.

West Hartlepool.—It is proposed to proceed with open-air school and tenders been invited. Architect, F. Durkin, B.E.

West Stanley.—Durham C.C. purchased site for school for 1,040 children. Architect, F. Willey, 34, Old Elvet, Durham.

Wetherby.—Rev. J. D. Clenaghan, Church of Immaculate Conception, Sicklinghall, acquired site near Bardsley Railway Station on East Keswick-rd., for church. Architect not yet appointed.

Whitby.—U.D.C. not yet placed contract for 52 houses. Hayes & Gray, architects, Central-chams., Wingate.

Wood Green.—U.D.C. instructed S. to invite tenders for internal decorations at baths.—Convenience proposed at Lymington-av.—M.H. sanction received to £40,100, for Noel-pk. Council school reconstruction scheme, and £2,840 for reconditioning heating systems at Alexandra and White Hart-lane schools.—Plans passed: rear of 155-157, Hornsey Park-rd., workshop, Humphries, Hollom, Ltd.; 49-61, Winton-av., amended block plan of 7 houses, C. E. Matthews.

Workington.—A. H. Oldfield, L.R.I.B.A., Workington, to prepare plans for church and Sunday school.

Worsborough.—U.D.C. propose 44 houses at Birdwell. T. Shield, S.

Yeovil.—T.C. decided to erect 10 houses for aged people on site of old Jubilee Cottages.

York.—Corporation to build 182 houses on Garrowby Hill estate.

Henderson"
SLIDING
DOOR
GEAR
BRITISH
HENDERSON HANGER
"TANGENT-LOCK-UP" DOOR GEAR
Every modern builder uses "HENDERSON" Door Gear because—it is easy to understand, order and erect. Can be seen at work in every town & is fully GUARANTEED.
P.C. HENDERSON LIMITED
TANGENT WORKS
BARKING · ESSEX

TRADE NEWS

Trocadero Cinema, Humbertone, Leicester.

We understand that the name of the cinema at Humberstone, illustrated in our last issue, has now been changed to the "Trocadero." The whole of the fibrous plasterwork and painted decorations has been carried out by the Allied Arts and Crafts Guild, Ltd., of Erdington, Birmingham.

Lift Firm's Extensions.

In addition to the new provincial premises which Messrs. John Bennie, Ltd., Star Lift Works, Glasgow, have opened, Messrs. Bennie have recently appointed the Central Engine Works, Ltd., as their agents at 65, Geylang-road, Singapore, 7, Macarthur-street, Kuala Lumpur, and 48, Lahat-road, Ipoh; Messrs. A. & T. Burt, Ltd., Courtenay-place, Wellington, New Zealand, for the whole of New Zealand; The Mort's Dock and Engineering Co., Ltd., Balmain, Sydney, for Northern Australia; Messrs. Oliver J. Nilsen & Co., 45-47, Bourke-street, Melbourne, for Victoria and South Australia; also branches in South Africa, Shanghai, Calcutta, etc. Messrs. Bennie's activities have increased considerably during the past few years, and we understand that they are now in a position to quote for high-class escalators and lifts, from the ordinary hand-power lift to high-speed gearless traction machines, capable of attaining a speed of 700 ft. per minute.

A Rust-Resisting Process.

A lunch was given on September 24 at the Savoy Hotel to draw attention to two processes which have been perfected by the Pyrene Co., Ltd. The first process is "Parkerizing," a scientific treatment of iron and steel which resists rust and corrosion and provides a protective finish without altering the nature and the dimensions of the object treated to any appreciable extent. The second process is "Bonderizing," a process which holds paint and enamel to steel. These processes—as were seen by a large party of chemists and the Press which visited the works at Brentford after the lunch—are simple in operation, and the setting up of the requisite plant no very considerable job. There would appear ample scope in the building industry for these processes, as it is computed that generally about £40 millions are wasted annually through the ravages of corrosion. Obvious opportunities for the application of "Parkerizing" occur in external fitments for building work, as gate hinges, nuts, bolts, railings, ornamental ironwork, etc., and for "Bonderizing" in the manufacture of metal windows, etc. The address of the licensing company is: Great West-road, Brentford, Middlesex.

Boilers, Towel Rails, etc.

The National Radiator Co., Ltd., issue particulars of the "Ideal" towel rails which they have recently brought out. These include the rails with square and hexagonal tubes. Also published is a revised price list of the "Ideal" indirect cylinders and a new small size in galvanised steel and copper suitable for use with ordinary back boilers. New finishes for some models of the "Cookanheat," "Classic" and "Open Fire" boilers are available. Reductions of price with effect over many articles are announced. The National Radiator Company are now in a position to offer a range of valves and unions of their own manufacture, and inset pages for the current catalogue relating thereto can be obtained from Hull.

This company has taken space at the Scottish Ideal Home Exhibition, which opened in the Kelvin Hall, Glasgow, on Wednesday, the stand number being 178. Being displayed are the "Ideal Cookanheat" in the black and nickel-plated finish, as well as in vitreous enamel, also the "Ideal" open and closed fire domestic boilers, the open fire boilers being shown both in coloured and mottled vitreous enamel, as well as the nickel-plated finish. A variety of other products is also on view.

PRICES CURRENT OF MATERIALS.*

Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge.

	£ s. d.
Best Stocks	4 3 6
Second Hard Stocks	3 18 6

Per 1,000. Delivered at London Goods Stations.

	£ s. d.		£ s. d.
Flettons, at King's Cross	2 11 3	Best Blue Pressed Staffs	9 5 0
Do., grooved for Plaster	2 13 3	Bo. Bullnose	9 15 0
Do., Bullnose	3 5 3	Blue Wire Cuts	7 5 0
White Midhurst Facing Bricks (delivered London site)	5 0 0		

Best Stourbridge Fire Brick:—
2½ in. ..... 8 11 0 3 in. 10 3 0

GLAZED BRICKS—

Best White Ivory and Salt Glazed Stretcher	21 0 0	D'ble Str'tch'rs	29 10 0
		D'ble Headers	26 10 0
Headers	20 10 0	One Side and two Ends	30 10 0
Quoins, Bullnose and 4½ in. Flats	27 10 0	Two Sides and one End	31 10 0
		Splays, and Squints	28 0 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours. Hard Glaze £5 10s. extra over white.

BREEZE CONCRETE SLABS.
Delivered London.

	s. d.		s. d.
2 in. per yd. super	1 11	3 in. per yd. super	2 9
2½ in. " "	2 4	4 in. "	3 6

	s. d.	
Thames Ballast	8 0	per yd
Pit Sand	11 0	" "
Thames Sand	11 0	" "
Best Washed Sand	11 6	" "
½ in. Shingle for Ferro-Concrete	8 6	" "
¼ in.	11 0	" "
½ in. Broken Brick	10 6	" "
Pan Breeze	8 0	" "

delivered 2 miles radius Paddington

Per ton delivered in London area in full van loads.
Best Portland Cement. British Standard Specification. Test £2 6 0 to £2 8 0
20s. alongside at Vauxhall in 80-ton lots.

Ferrocrete per ton extra on above	0 7 6
Vitecrete " "	0 7 6
Super Cement (Waterproof)	3 16 0
Ciment Fondu (F.O.R. Works)	4 15 0
Roman Cement	8 15 0
Parian Cement	5 15 0
Keene's Cement, White	5 15 0
" " Pink	5 10 0
Plaster, Coarse, Pink	3 0 0
" " White	3 12 6
" Fine	5 12 0
Sirapite, Coarse	3 9 0
" Finish	3 17 0
Grey Stone Lime	2 10 9
Chalk Lime	2 10 9
Best Ground Blue Lias Lime	1 17 6
Hair per cwt.	2 2 0
Granite Chippings	1 12 0

NOTE.—Sacks are charged 1s. 9d. each and credited 1s 0d. if returned in good condition within three months carr. pd.
Stourbridge Fireclay in s'cks 37s. 0d. per ton at rly. dp.

STONE.

BATH STONE.—Delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube ..... s. d. 2 10

BEER STONE—RANDOM BLOCK—
Free on rail at Seaton Station per ft. cube 2 3
Delivered free on rail Nine Elms, S.R. per ft. cube 3 1½
Selected approximate size one way, 1d. per cubic foot extra; selected approximately three sizes or for special work, 3d. per cubic foot extra.

PORTLAND STONE—
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, S. Rly., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube 4 4½
Do. do. delivered on road wagons at above stations, per ft. cube 4 5½
White basebed, 3d. per ft. cube extra.
NOTE.—1d. per ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft.

CHILMARK—RANDOM BLOCK—
At Nine Elms, per ft. cube 3 11

HOPTON-WOOD STONE—
F.O.R. Quarries, Wirksworth, Derbyshire, Random blocks from 10 ft. and over P. ft. cb. s. d. 14 0
Sawn two sides ..... " 22 6
Sawn three or four sides ..... " 27 6

YORK STONE, BLUE—*Robin Hood Quality.*
Delivered at any Goods Station, London
6 in. sawn two sides landings to sizes (under 30 ft. super) .....Per ft. super 5 6
6 in. rubbed two sides, ditto..... " 6 0
3 in. sawn two sides slabs (random sizes) " 2 3½
1 in. to 2½ in. sawn one side slabs (random sizes) ..... " 1 6½
1¼ in. to 2 in. ditto, ditto ..... " 1 3½

HARD YORK—
Delivered at any Goods Station, London.
Scappled random blocks .....Per ft. cube 6 3
6 in. sawn two sides landing to sizes (under 40 ft. super) .....Per ft. super 5 1½
6 in. rubbed two sides, ditto ..... " 6 1½
4 in. sawn two sides slabs (random sizes) " 2 1½
3 in. ditto ditto " 2 10
2 in. self-faced random flags.....Per yd. super 8 0

CAST STONE.

Delivered in London area in full van loads, per ft. cube: Plain, 8s. 6d.; Moulded, 9s. 6d.; Cills, 10s. 0d

WOOD.

GOOD BUILDING DEAL.

Inches.	per stan.	Inches.	per stan.
4 × 11	£27 10	3 × 6	£19 0
4 × 9	26 0	3 × 11	20 0
4 × 8	25 0	3 × 11	21 0
4 × 7	20 0	3 × 9	19 0
3 × 8	20 0	2½ × 9	20 0
3 × 7	20 0	3 × 4½	19 6
2½ × 7	19 0	3 × 4	19 0

PLANED BOARDS.

1 × 11	£26 0	1 × 9	£26 0

PLAIN EDGE FLOORING.

Inches.	per sq.	Inches.	per sq.
¾	18/-	1½	26/-
¼	19/-	1¼	30/-
1	22/-		

TONGUED AND GROOVED FLOORING

Inches.	per sq.	Inches.	per sq.
1	22/6	¾	15/-
1½	27/-	½	17/-
1¼	30/-	1	22/-

Ins. BATTENS.	s. d
¾ × 2 .....per 100 ft.	2 3

SAWN LATHS.

	s. d.
Per bundle	2 0

1 INCH AND UP THICK.

Average price for prime quality.	£ s. d.
Dry Austrian Wainscot, per ft. cubs.	0 15 0
Dry American and/or Japanese Figured Oak, per ft. cube	0 12 0
Dry American and/or Japanese plain Oak, per ft. cube	0 10 0
Dry sq. edged Honduras Mahogany, per ft. cube	0 14 0
Dry log-cut Honduras Mahogany, per ft. cube	0 16 0
Dry Cuba Mahogany, per ft. cube	1 1 0
Dry Teak, per ft. cube	0 14 0
Dry American Whitewood, per ft. cube	0 10 0
Best Scotch Glue, per cwt.	£4 10 0 to —
Liquid Glue, per cwt.	4 7 0 to 5 10 0

SLATES.

First quality slates from Bangor or Portmadoc carriage paid in full truck loads to London Rate Station. Per 1,000 actual.

	£ s. d.		£ s. d.
24 by 12	31 0 0	18 by 10	17 5 0
22 by 12	27 19 6	18 by 9	15 10 0
22 by 11	25 5 0	16 by 10	14 14 6
20 by 12	24 7 6	16 by 8	11 5 0
20 by 10	20 17 6		

TILES.

Delivered at London rate stations in full truck loads of not less than 6 tons. Per 1,000. f.o.r. London.

Best machine-made tiles from Broseley or Staffordshire district	£5 2 6
ditto hand-made ditto	5 7 6
Ornament l ditto	5 12 6
Hip and valley tiles (per dozen) Hand-made	0 9 6
Hip and valley tiles (per dozen) Machine-made	0 9 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION, PER TON—	
R.S. Joists, cut and fitted	£12 10 0
Plain Compound Girders	14 10 0
" Stanchions	16 10 0
In Roof Work	19 10 0

MILD STEEL ROUNDS.—To London Station, per ton

Diameter.	£ s. d.	Diameter.	£ s. d.
½ in.	12 0 0	⅝ in. to ¾ in.	10 15 0
⅜ in.	11 0 0	⅞ in. to 2½ in.	10 10 0

WROUGHT-IRON TUBES AND FITTINGS—
(Discount off List for lot of not less than £7 net value delivered direct from Works. 2½ per cent. less above gross discounts, carriage forward, if sent from London Stocks.)

	Tubes. Wrought Mild Steel.	Tubes. Genuine Staffs.	Fittings. ⅛ in. and under.	Fittings. Over ⅛ in.	Flanges. ⅛ in. and under.	Flanges. Over ⅛ in.
	Iron.					
	%	%	%	%	%	%
Gas	62½	50	40	47½	55	52½
Water	58½	46½	40	42½	50	52½
Steam	55	42½	35	37½	45	47½
Galv. gas	50	37½	35	37½	45	47½
Galv. water	45	32½	30	32½	40	42½
Galv. steam	40	27½	25	27½	35	37½

*C.I.—HALF-ROUND GUTTERS—London Prices ex Works

Per yd. in 6 ft. lengths,	Gutters.	Angles and Nozzles.	Stop Ends.
3 in.	10d.	7½d.	2½d.
3½ in.	10½d.	8½d.	2½d.
4 in.	10½d.	9½d.	2½d.
4½ in.	11½d.	10½d.	2½d.
5 in.	1/1½	11½d.	3½d.

*O.G. GUTTERS.

3 in.	1/0	10½d.	2½d.
3½ in.	1/0½	10½d.	2½d.
4 in.	1/1½	10½d.	2½d.
4½ in.	1/2½	1/0½	2½d.
5 in.	1/5	1/2½	3½d.

*RAIN-WATER PIPES, &c.

Per yd. in 6 ft. Pipe.		Bends, stock Branches, angles, stock angles.	
2 in. plain	1/2½	9½d.	1/2
2½ in. "	1/3	10½d.	1/4
3 in. "	1/6½	1/1½	1/8½
3½ in. "	1/11	1/4½	1/11½
4 in. "	2/2½	1/7½	2/4½

*The above R.W. Goods prices are subject to an advance of 5% from October 29th, 1929.

L.C.C. COATED SOIL PIPES—London Prices ex Works.

	Bends, stock Branches. Pipe, angles, stock angles.			
	s. d.	s. d.	s. d.	
2 in. per yd. in 6 fts. plain	2 1½	1 6½	1 10½	
2½ in. "	2 6	1 8½	2 4	
3 in. "	2 8	1 10½	2 9½	
3½ in. "	2 10½	2 4	3 3	
4 in. "	3 3	2 7½	3 9	

L.C.C. COATED DRAIN PIPES—London Prices ex Works

	Bends, stock Branches. Pipe, angles, stock angles.		
	s. d.	s. d.	s. d.
3 in. per yd. in 9 ft. lengths	3 6	4 8	6 8
4 in. " cwt. qr. lbs. 1 1 20	4 9	5 2	8 10
5 in. " 1 2 22	6 3	9 0	14 3
6 in. " 2 0 6	6 11	10 11	18 1

Gaskin for jointing 41/- per cwt.

	Per ton in London.					
IRON—	£	s.	d.	£	s.	d.
Common bars	11	0	0 to	12	0	0
Staffordshire Crown Bars Good merchant quality	11	5	0 to	12	5	0
Staffordshire Market Bars	14	0	0 ...	15	0	0
Mild Steel Bars	9	10	0 ...	10	10	0
Steel Bars, Ferro-Concrete quality, basis price	9	0	0 ...	10	0	0
Hoop iron, basis price	11	0	0 ...	12	0	0
" Galvanised	27	0	0 ...	28	0	0
Soft Steel Sheets, Black— Ordinary sizes, to 20 g.	11	10	0 ...	12	0	0
" " " 24 g.	13	0	0 ...	14	0	0
" " " 26 g.	15	0	0 ...	16	0	0
Sheets Flat Best Soft Steel, C.R. and C.A. quality— Ordinary sizes, 6 ft. by 2 ft to 3 ft. to 20 g.	14	10	0 ...	15	10	0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 22 g. and 24 g.	15	10	0 ...	16	10	0
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 26 g.	18	10	0 ...	19	5	0
No. 1 quality £4 per ton extra.						
Flat and Galvanised Corrugated Sheets— Ordinary sizes 6 ft. to 9 ft. to 20 g.	15	0	0 ...	16	0	0
Ordinary sizes 6 ft. to 9 ft. to 22 g. and 24 g.	15	10	0 ...	16	10	0
Ordinary sizes, 6 ft. to 9 ft. to 26 g.	18	10	0 ...	19	10	0
Sheets Galvanised Flat, Best quality— Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	20	10	0 ...	21	10	0
Best Soft Steel Sheets, 22 g. and 24 g.	22	10	0 ...	24	10	0
Best Soft Steel Sheets, 26 g.	24	0	0 ...	25	0	0
Cut Nails, 3 in. to 6 in.	16	0	0 ...	17	0	0

(Under 3 in. usual trade extras.)

METAL WINDOWS.—Standard sizes, suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1s. 4d. to 1s. 7d. per foot super.

LEAD, &c.

(Delivered in London.)	£ s. d.
LEAD—Sheet, English, 4 lb. and up	23 10 0
Pipe in coils	24 0 0
Soil pipe	27 0 0
Compo pipe	28 0 0

NOTE.—Country delivery, 20s. per ton extra: lots under 3 cwt. 3s. per cwt. extra, and over 3 cwt. and under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 5s. cwt. extra.

	£ s. d.
Old lead, ex London area, at Mills per ton	£13 10 0

COPPER.

	£ s. d.
Seamless Copper tubes (basis) per lb.	0 9½
Strong sheet "	0 10
Thin "	0 11
Copper nails "	1 0
Copper wire "	0 11

PLUMBERS' BRASS WORK.
Delivered in London.

NEW RIVER PATTERN SCREW DOWN BIB COCKS FOR IRON.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
20/-	45/-	76/-	153/-	246/-	510/- per doz.

NEW RIVER PATTERN SCREW DOWN STOP COCKS AND UNIONS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
41/6	62/-	92/-	174/-	300/-	588/- per doz

RIVER PATTERN SCREW DOWN MAIN FERRULES.

½ in.	¾ in.	1 in.
30/6	60/-	116/6 per doz

CAPS AND SCREWS.

1¼ in.	1½ in.	2 in.	3 in.	3½ in.	4 in.
7/6	10/-	14/-	23/-	30/-	42/- per doz.

DOUBLE NUT BOILER SCREWS.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.	2 in.
7/6	11/-	17/-	29/-	36/-	63/- per doz.

BRASS SLEEVES.

1½ in.	2 in.	3 in.	3½ in.	4 in.
10/-	12/-	20/-	24/-	31/- per doz.

NEW RIVER PATTERN CROYDON BALL VALVES, S.F.

½ in.	¾ in.	1 in.	1¼ in.	1½ in.
35/-	56/-	98/-	162/-	228/- per doz.

DRAWN LEAD P. & S. TRAPS WITH BRASS CLEANING SCREW.

	1½ in.	1½ in.	2 in.	3 in.
8 lbs. P. traps	33/-	41/-	56/-	101/- per doz.
8 lbs. S. traps	35/-	45/-	66/-	126/- "

TIN.—English Ingots, 1/4 per lb. SOLDER.—Plumber's 8d., Tinmen's 9d., Blowpipe 10d. per lb.

PAINTS, &c.

Raw Linseed Oil, in pipes per gallon	0	2	5
" " " in barrels	0	2	7
" " " in drums	0	2	10
Boiled " " in barrels	0	2	10
" " in drums	0	3	0
Turpentine in barrels	0	4	11
" in drums (10 galls.)	0	5	1
Genuine Ground English White Lead, per ton (In not less than 5-cwt. casks.)	46	0	0

Extra for 1-cwt. kegs over 5-cwt. casks is 5/0 cwt.

*The information given on this page has been specially compiled for THE BUILDER, and is copyright. The aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

PRICES CURRENT OF MATERIALS—(*cont.*)

PAINTS, &c.—(*cont.*)

		£ s. d.
GENUINE WHITE LEAD PAINT. "Father Thames," "Nine Elms," "Park," "Supremus," "St. Paul's," "Morganwyte," "Polacco," "J" Brand, and other best brands (in 14-lb. tins) not less than 5 cwt. lots. per ton delivered		64 0 0
Red Lead, Dry (packages extra)	per ton	33 0 0
Best Linseed Oil Putty	per cwt.	0 18 6
Filicol	"	0 16 6
Size. XD quality	ftn.	0 3 0

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

Per ft.		Per ft.
15 oz. fourths	2½d.	32 oz. fourths 6½d.
15 " thirds	3½d.	32 " thirds 9d.
21 " fourths	3½d.	Obscured Sheet, 15 oz. 3½d.
21 " thirds	4d.	" " 21 oz. 4½d.
26 " fourths	4½d.	Fluted, 15 oz. 7d., 21 oz. 9½d.
26 " thirds	6½d.	Em'iled, 15 oz. 4½d., 21 oz. 6d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED plate in CRATES OF STOCK SIZES. Per ft.

¼ Rolled plate	4½d.
⅜ Rough rolled	5½d.
Rough rolled	5½d.
Figured Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish White	5½d.
Ditto, tinted	8d.
Rolled Sheet	4½d.
White Rolled Cathedral	4½d.
Tinted do.	6½d.

Cast plate is same price as rough rolled.

"VITA" GLASS.	Per foot. s. d.
Clear sheet—not exceeding 1 foot	1 0
Do. do. 2 feet	1 3
Do. over 2 feet	1 9
Polished plate—not exceeding 1 foot	1 6
Do. not exceeding 2 feet	3 0
Cathedral—not exceeding 1 foot	1 0
Do. larger sizes	1 6
Horticultural—for greenhouses, etc. Sizes up to 24 inches by 18 inches or not exceeding 3 feet	1 0
8/16 in. Wired Georgian Design. Sizes up to 108 inches long by up to 24 inches wide	2 6

VARNISHES, &c.

		Per Gallon. £ s. d.
Oak Varnish	Outside	0 14 0
Fine ditto	ditto	0 16 0
Fine Copal	ditto	0 18 0
Pale Copal	ditto	1 0 0
Pale Opal Carriage	ditto	1 4 0
Best ditto	ditto	1 12 0
Floor Varnish	Inside	0 18 0
Fine Pale Paper	ditto	0 18 6
Fine Copal Cabinet	ditto	1 2 6
Fine Copal Flatting	ditto	1 0 0
Hard Drying Oak	ditto	0 18 0
Fine Hard Drying Oak	ditto	0 19 6
Fine Copal Varnish	ditto	1 0 0
Pale ditto	ditto	1 12 6
Best ditto	ditto	1 2 6
Best Japan Gold Size		0 12 0
Best Black Japan		0 10 0
Oak and Mahogany Stain (water)		0 12 0
Brunswick Black		0 7 0
Berlin Black		0 14 0
Knotting (patent)		1 5 0
French and Brush Polish		0 17 0
Liquid Dryers in Terebene		0 9 0
Culrass Black Enamel		0 7 0

NEW COMPANIES

THE particulars quoted below have been compiled by Messrs. Jordan & Sons, Ltd., Company Registration Agents, of 116 and 117, Chancery-lane, W.C.2, from the documents available at the Companies' Registry.

ROADFELT, LTD. (258,378). Registered August 12. Swinton House, 324, Gray's Inn-road, W.C.1. Manufacturers and vendors of and contractors for substances and preparations for making or surfacing roads, etc. Nominal capital, £2,500.

BRITISH BRICK-AND-IRON LATHING, LTD. (258,529). Registered August 21. 620, Bank-chambers, 329, High Holborn, W.C.1. Contractors for lathing material, ceilings, walls, floors, etc. Nominal capital, £25,000.

ASPHALT AND PUBLIC WORKS, LTD. (258,458). Registered August 17. 74, Church-street, Birmingham. Constructors of roads, bridges, factories, etc. Nominal capital, £10,000.

LOWNS TAYLOR, LTD. (258,523). Registered August 20. Walmer Estate Office, Dover-road, Walmer. Breeze block manufacturers. Nominal capital, £1,000.

CLEVELAND TILEWORKS (1931), LTD. (258,503). Registered August 20. 52, Liverpool-road, Stoke-on-Trent. Manufacturers and decorators of glazed and unglazed wall tiles, etc. Nominal capital, £3,000.

THE SCOTTISH BUILDER

NEW BUILDINGS

The Editor would be glad to receive information for publication under this heading from architects, builders, or other persons concerned. Items should be received at THE BUILDER *Office not later than Tuesday evening.*

Aberdeen. — HOUSING. — Aberdeen Town Council have approved a recommendation by its Housing Committee that the Director of Housing be instructed to prepare working plans, specifications, and schedules of quantities, and thereafter procure tenders for the erection of 258 houses of six-tenement type in the Torry district of the city.

Aberfoyle.—ROAD.—A road-widening and resurfacing contract has just been secured by Messrs. John Campbell & Sons, quarrymasters and contractors, Aberfoyle. The contract is on a stretch of road, 17 miles in length, between Wick and John o' Groats.

Perth.—ART GALLERY.—Perth Dean of Guild Court has passed plans for the erection of Perth's new art gallery and museum. The application was submitted by the Lord Provost, Magistrates and Councillors as proprietors of a piece of ground lying between Charlotte-street, George-street, Bridge-lane, Castle Gable, and North Port.

Rothesay.—HOUSING.—The purchase of land from the Bute Estate for housing-scheme purposes was approved by the Town Council. It was agreed that the piece of ground near the Victoria Hospital would be a suitable site.

HOUSING PROGRESS IN SCOTLAND.

The following figures show the progress that has been made in State-aided housing schemes in Scotland to August 31, 1931 :—

	Completed.	Under construction.
1919 Act	25,129	—
do. (by public utility societies)	421	—
Private subsidy schemes (1919 Additional Powers Act)	2,324	—
Slum clearance schemes	13,751	1,203
1923 Act :—		
By local authorities	4,033	—
By private enterprise	20,101	1,969
By public utility societies	80	—
1924 Act :—		
By local authorities	51,835	6,063
By private enterprise	2,975	641
By public utility societies	127	16
1930 Act :—		
By local authorities	28	2,379
Unallocated houses	—	8
Demonstration houses	17	—
Steel houses erected on behalf of Government by Scottish National Housing Company	2,552	—
	123,373	12,304

BUILDING TRADE WAGES IN SCOTLAND*

The following are the present rates of wages in the building trade in the principal towns of Scotland. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur.

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Labourers—Masons'† Bricklayers'† Plasterers'.†
Aberdeen	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/2½
Airdrie	1/7	1/7	1/7	1/8	1/7	1/7	1/7	‡1/2½ ‡1/2½
Alexandria	1/7	1/7	1/7	1/8	1/7	1/7	1/7	‡1/2½ ‡1/2½
Arbroath	1/6	1/6	1/6	1/7	1/6	1/6	1/7	1/1
Ayrshire	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/2½
Bathgate	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/2 1/3
Berwickshire	1/6	1/6	1/6	1/7	1/6	1/6	1/7	1/1½
Bo'ness	1/7	1/7	1/7	1/8	1/7	1/7	1/7	‡1/2½
Broughty Ferry	1/7	1/7	1/7	1/8	1/7	1/7	1/7	‡1/2½ ‡1/2½
Clackmannanshire	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/2½
Coatbridge	1/7	1/7	1/7	1/8	1/7	1/7	1/7	‡1/2½ ‡1/2½
Dumbartonshire	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/2½
Dumfries	1/6	1/6	1/6	1/7	1/6	1/6	1/7	1/1
Dumfriesshire	1/6	1/6	1/6	1/7	1/6	1/6	1/7	1/1½
Dundee	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/2½
Dunfermline	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/2½
Dunoon	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/2½
East Lothian	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/2½
Edinburgh	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/2½
Falkirk	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/1½
Forfarshire	1/6	1/6	1/6	1/7	1/6	1/6	1/7	1/2
Fort William	1/6	1/6	1/6	1/7	1/6	1/6	1/7	1/1
Galashiels	1/6	1/6	1/6	1/7	1/6	1/6	1/7	1/2½
Glasgow	1/7	1/7	1/7	1/8½	1/7	1/7	1/7	1/2½
Greenock	1/7	1/7	1/7	1/8	1/7	1/7	1/7	‡1/2½ ‡1/2½
Hamilton	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/7	1/1
Hawick	1/6	1/6	1/6	1/7	1/6	1/6	1/7	‡1/2½ ‡1/2½
Helensburgh	1/7	1/7	1/7	1/8½	1/7	1/7	1/4½	10d.–1/2
Inverness	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/7	1/2
Inverurie	1/6½	1/6½	1/6½	1/7½	1/6½	1/6½	1/7	1/2½
Kilmarnock	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/1
Kincardineshire	1/6	1/6	1/6	1/7	1/6	1/6	1/7	1/2½
Kinross-shire	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/2½
Kirkcaldy	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/–
Kirkwall	1/5	1/5	1/5	1/6	1/5	1/5	1/7	1/2½
Lanarkshire	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/2½
Leith	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/2½
Midlothian	1/7	1/7	1/7	1/8	1/7	1/7	1/7	‡1/2½ ‡1/2
Motherwell	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/7	1/1
Peeblesshire	1/6	1/6	1/6	1/7	1/6	1/6	1/7	1/2½
Perth	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/1½
Perthshire	1/6	1/6	1/6	1/7	1/6	1/6	1/7	1/2
Peterhead	1/6½	1/6½	1/6½	1/7½	1/6½	1/6½	1/7	1/2½
Renfrewshire	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/2½
Rothesay	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/1½
Roxburghshire	1/6	1/6	1/6	1/7	1/6	1/6	1/7	1/2½
St. Andrews	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/1
Selkirkshire	1/6	1/6	1/6	1/7	1/6	1/6	1/7	‡1/2½ ‡1/2½
Stirling	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/1
Stirlingshire, West	1/6	1/6	1/6	1/6	1/6	1/6	1/7	1/1
Stornoway	1/6	1/6	1/6	1/7	1/6	1/6	1/7	1/2½
West Lothian	1/7	1/7	1/7	1/8	1/7	1/7	1/7	1/2½ ‡1/2½
Wishaw	1/7½	1/7½	1/7½	1/8½	1/7½	1/7½	1/7	

* The information given in this table is copyright. The rates of wages in various towns in England and Wales are given on page 563.

CURRENT PRICES FOR BUILDING WORK IN LONDON*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	9	9
Add if in clay	" "	1	0
Add for every additional depth of 6 ft.	" "	0	6
Planking and strutting to trenches	per foot super	0	4
Do. to sides of excavation, including shoring	"	1	0

CONCRETOR.

		s.	d.
Portland cement concrete in foundation 1 to 6	per yard cube	27	0
Add if in underpinning in short lengths	" "	6	0
Add if in floors 6 in. thick	" "	2	6
Add if in beams	" "	3	0
Add if aggregate 1 : 2 : 4	" "	10	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	"	2	0

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	30	0	0
Add if in stocks	"	7	10	0
Add if in Staffordshire blues	"	22	0	0
Add if in Portland cement and sand	"	1	5	0

FACINGS.

		s.	d.
Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	1½

POINTING.

		s.	d.
Neat flat struck or weathered joint	" "	0	3

ARCHES.

		s.	d.
Extra only to the price of ordinary brickwork:—			
Fair external in half brick rings	" "	0	10
Axed in stocks	" "	1	9
Rubbed and gauged jointed in putty camber or segmental	" "	6	0

SUNDRIES.

		s.	d.
Damp course in double course of slates breaking joint and bedded in Portland cement	" "	1	0
Setting ordinary register grates and stoves	each	1	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	"	4	15

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard super	4	6
Three-quarter-inch vertical damp course	" "	9	6
Three-quarter-inch on flats in two thicknesses	" "	6	0
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	" "	1	0

MASON.

		s.	d.
York stone templates fixed	per foot cube	13	0
York stone sills fixed	" "	22	0
Bath stone and all labour fixed	" "	10	6
Beer stone and all labour fixed	" "	15	0
Portland stone fixed	" "	20	0
Chilmark stone fixed complete	" "	17	6

SLATER.

		s.	d.
Welsh 16 in. × 8 in. 3 in. lap, including nails	per square	72	9
Do. 20 in. × 10 in. Do. Do.	"	80	9
Do. 24 in. × 12 in. Do. Do.	"	90	0

CARPENTER AND JOINER.

		s.	d.
Fir framed in plates	per foot cube	4	3
Do. joists	" "	4	9
Do. roofs, floors and partitions	" "	5	3
Do. trusses	" "	7	9

		¾"	1"	1¼"	2"
Deal rough close boarding	per sq.	33/6	38/-	43/-	70/-
Flat centering for concrete floor, including struts or hangers	"				50 0
Do. to beams	per ft. sup.				0 9
Centre for arches	"				1 6
Gutter boards and bearers	"				1 0

FLOORING.		¾"	1"	1¼"	1½"
Deal-edges shot	per sq.	—	42/6	50/-	57/6
Do. tongued and grooved	"	—	47/-	56/-	64/-
Do. matchings	"	44/-	49/-	—	—
Moulded skirting, including backings and grounds	per ft. sup.	1/6	1/9	2/-	2/6

SASHES AND FRAMES		s.	d.
One-and-a-half moulded sashes or casements	per foot super	1	10
Two Do. Do.	" "	2	1
Add for fitting and fixing	"	0	3
Deal-cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares, double hung, double hung with pulleys, lines and weights; average size	"	3	9

DOORS		1½"	1¾"	2"
Two-panel square framed	per ft. sup.	2/1	2/3	2/5
Four-panel Do.	"	2/4	2/6	2/9
Two-panel moulded both sides	"	2/6	2/9	2/11
Four-panel Do. Do.	"	2/9	2/11	3/2

CARPENTER AND JOINER—continued.

FRAMES.

		1"	1¼"	1½"
Deal wrot moulded and rebated	per foot cube	14	0	
Plain deal jamb linings framed	per ft. sup.	1/7	1/8	1/11
Deal shelves and bearers	"	1/4	1/6	1/9
Add if cross-tongued	"	2d.	2d.	2d.

STAIRCASES.

		1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough brackets		2/1	2/4	2/9	—	—
Deal strings wrot on both sides and framed		1/8	2/-	2/2	2/8	—

		s.	d.
Housings for steps and risers	each	0	11
Deal balusters, 1 in. × 1¼ in.	per ft. run	0	9
Mahogany handrail average, 3 in. × 3 in.	" "	6	0
Add if ramped	" "	12	0
Add if wreathed	" "	24	0

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/-
Sash fasteners	11½d.	Mortice locks	4/6
Casement fasteners	1/5	Patent spring hinges and letting into floor and	
Casement stays	1/2	making good	19/-
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	15	3
Plain compound girders	"	18	0
Do. stanchions	"	20	9
In roofwork	"	26	6

RAIN-WATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints	ft. run	1/4	1/7	1/9	2/-
Ogee Do. Do.	"	1/6	1/9	2/3	2/9
Rain-water pipes with ears	"	1/6	2/4	—	—
Extra for shoes and bends	each	3/4	4/11	—	—
Do. stopped ends	"	1/6	1/10	2/9	3/3
Do. nozzles for inlets	"	2/2	2/7	3/10	4/3

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	40	0
Do. Do. in flats	"	39	0
Extra labour and solder in coated cesspools	each	6	9
Welt joint	per ft. run	0	6
Soldered seam	" "	1	3
Copper nailing	" "	0	3

		½"	¾"	1"	1¼"	2"	4"
Drawn lead waste	per ft. run	1/1	1/7	1/10	3/-	3/6	—
Do. service	"	1/6	2/-	2/5	3/6	—	—
Do. soil	"	—	—	—	—	—	6/-
Bends in lead pipe	each	—	—	—	—	3/-	6/6
Soldered stop ends	"	1/-	1/4	1/9	2/6	3/2	—
Red lead joints	"	11d.	1/-	1/3	1/11	2/4	4/10
Wiped soldered joints	"	2/6	3/-	3/6	4/4	5/6	7/9
Lead traps and cleaning screws	"	—	—	—	12/7	17/6	—
Bib cocks and joints	"	6/4	9/7	15/4	41/-	—	—
Stop cocks and joints	"	15/4	17/2	25/8	64/-	—	—

PLASTERER.

		s.	d.
Render, float and set in lime and hair	per yard sup.	2	3
Do. Do. Sirapite	" "	2	6
Do. Do. Keen's	" "	3	6
Add saw lathing	" "	1	7
Add metal lathing	" "	2	6
(Not including hangers or runners, etc., for suspended ceilings.)			
Portland cement screed	" "	2	2
Do. plain face	" "	3	3
Mouldings in plaster	per 1 girth	0	1½
One-and-a-half granolithic pavings	per yard sup.	5	3

GLAZIER.

		s.	d.
21-oz. sheet plain	per foot sup.	0	7½
26-oz. Do.	" "	0	10
Obscured sheet	" "	1	1
⅛-in. rolled plate	" "	0	9
¼-in. rough rolled or cast plate	" "	0	10
¼-in. wired cast plate	" "	1	3

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	0	9
Knotting and priming	" "	0	7
Plain painting, 1 coat	" "	0	9
Do. 2 coats	" "	1	2
Do. 3 coats	" "	1	9
Do. 4 coats	" "	2	4
Graining	" "	2	3
Varnishing twice	" "	1	9
Sizing	" "	0	3
Flatting	" "	0	7
Enamel	" "	1	1
Wax polishing	per foot sup.	0	6
French polishing	" "	1	2
Preparing for and hanging paper	per piece, 2/- to 4/-		

*These prices apply to *new buildings only*. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

TENDERS

Communications for insertion under this heading should be addressed to "The Editor," and must reach him not later than Tuesday evening.

* Denotes *accepted*.
† Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modifications*.
¶ Denotes *accepted by H.M. Office of Works and H.M. War Office*.

Aberdeen.—Sewer works, for the T.C.:—Mr. Thos. F. Henderson, M.Inst.C.E., City Engineer and Water Engineer:—

Construction of sewers at Edgehill-road and Edgehill-terrace—
*James Leith, Froghall-road, Aberdeen £265 9 8

Construction of sewer in Gray-street and Great Western-road—
*Police Workshops Department, Jasmine-terrace, Aberdeen 239 17 8

Aberdeen.—Reinforced concrete stair at Back Wynd, from Union-street to Green, for the T.C. Mr. T. F. Henderson, City Engineer:—

*James Scott & Son (Aberdeen), Ltd., 483-485, Union-street, Aberdeen £568 10

Aberdeen.—Alterations at 42, George-street. Messrs. W. Beaton & Son, architects, Aberdeen:—

*W. Benton & Son, Aberdeen.

¶Aldergrove.—Extension to the shed, for H.M. Air Ministry:—

*H. & J. Martin, Ltd., Ormeau-road, Belfast.

Ambleside.—Governor house and instrument room at Gas Works, for the U.D.C. Mr. W. N. Battersby, engineer, Gas Offices:—

*W. Stalker & Son, Ambleside.

Armley.—Demolition of old foundry buildings and erection of new offices, for Messrs. Wilson & Mathieson's, Ltd. Messrs. Chadwick, Watson & Co., architects, Albion-street, Leeds:—

*Hy. Atkinson & Sons, Ltd.

Barking Town.—Works at schools on the Becontree housing estate, for the U.D.C.:—

For rolled steel joists, sites "C" and "D."—
*Sanders & Forster, Ltd. £161 12 0

For roof tiling at Erkenwald and Roding schools—
*W. T. Lamb & Son £1,852 8 5

Barking Town.—Steelwork at Upney Infectious Diseases Hospital, for the U.D.C.:—

*Sanders & Forster, Ltd. £530

Basford.—Conversion of 133 pail closets and 355 privies and 176 closets, for the R.D.C. Mr. S. Maylan, engineer:—

†Allcock & Sission, Langley Mill £4,721

Basford.—Conversion of 276 pail closets and 668 privies and 516 closets at Selston, for the R.C. Mr. S. Maylan, engineer:—

†E. J. Boot, Beeston £10,306

Berkhamsted.—Four houses at Wilstone, for the R.D.C. Mr. J. Oakes, surveyor:—

F. Whitman, Hudnall, Berkhamsted £1,620 0
G. Alcock, Cheddington 1,605 0
A. W. Humphreys, The Lee 1,594 14
Bunn & Green, Northchurch, Berkhamsted 1,580 0
S. Gilbert & Son, Berkhamsted ... 1,574 0
F. Adams, Buckland Wharf 1,360 0
*F. Chandler, Long Marston, Tring 1,350 0

Birkenhead.—Installation of heating, ventilation, hot and cold water supplies, bath filtration and chlorination, laundry equipment and engineering sundries, for the New South End public baths, for the T.C. Mr. R. W. Johnston, engineer and architect:—

†Saunders & Taylor, Ltd., Manchester.

Birkenhead.—Structural alterations to the "Derby Arms" hotel, Nelson-place, for Messrs. Threlfall's Brewery Co., Ltd., Borough-road. Mr. B. Waterhouse, F.M.S.A., architect, Architects' Department, Threlfall's Brewery Co., Ltd., Cook-street, Salford:—

*W. Fleming, Birkenhead.

Birmingham.—Memorial chapel of St. Edward in memory of the late Archbishop Ilsley on a site adjoining the Metropolitan Cathedral Church of St. Chad, Bath-street. Mr. S. Pugin Powell, of Messrs. Pugin & Pugin, architects, 230, North End-road, Fulham, W.14:—

*Archer Bros., Birmingham.

Bradford.—Heating at Swain House school, for the T.C.:—

*H. Sayes & Co., Ltd., Leeds £719

Bradford.—Alterations to the Southfield-lane store and workshops, for the T.C.:—

Heating—
*David Wiggins £194 0 0

Building work (all trades)—
*Ephraim Balmforth & Sons, Ltd. 1,964 7 6

Brighton.—74 houses on the Whitehawk housing estate, for the C.B. Town Clerk:—

*Gay & Wilcox, Easington Housing Estate, Banbury £27,726

Cardiff.—Subway at the General Station, for the G.W.R. Chief Engineer, Paddington Station, London, W.2:—

*A. Jackaman & Son, Ltd., 13, Mackenzie-street, Slough.

Chester.—Extensions to buildings in Queen's-road, for the Chester Engineering Co. (1918), Ltd., City-road:—

*W. H. Smith & Sons (Whitchurch), Ltd., Whitchurch.

Chesterfield.—22 houses A3 type fronting Walton-crescent, Boythrope housing estate, for the T.C. Mr. W. A. Derbyshire, architect, 30, Glumangate:—

*Clay Cross Co., Ltd., Clay Cross, Chesterfield.

Chesterton.—Houses, for the R.D.C.:—

Per pair.
Two pairs of parlour type houses—
*T. Harding & Sons £715

Two pairs of non-parlour type—
*T. Harding & Sons 590

Clifford.—4 houses, for the Wetherby R.D.C. Mr. H. Smith, clerk:—

*J. Lewis £1,272

Coulsdon and Purley.—Making up roads, for the U.D.C.:—

	Starrock-road.	*Fairdene-road (30-ft. section).*	*Fairdene-road (40-ft. section).*	*Red Down-road.*	*Yew Tree-walk.*	*Green-lane (Part of).*
Brookes, Ltd.	£2,944 19 1	£1,126 11 3	£2,704 6 3	£2,826 3 10	£1,132 17 11	£1,703 9 7
Burton & Donovan, Sutton	2,461 9 3	*889 2 9	*2,194 19 2	2,266 6 1	946 3 0	*1,441 16 9
Costain, R., & Sons, Ltd.	3,126 9 0	1,186 3 3	2,907 4 10	3,044 16 0	1,133 17 6	1,869 8 10
Cronk, John, & Sons, Ltd.	3,172 0 0	1,110 0 0	2,846 0 0	2,946 0 0	1,241 0 0	1,956 0 0
Faulkner, G. S., & Sons, Reigate	2,728 18 2	1,033 17 2	2,572 15 1	2,573 13 10	1,102 2 11	1,683 17 9
Free, Thos., & Sons, Ltd., Frenchay, Bristol	2,780 6 7	996 5 0	2,486 19 7	2,575 17 2	1,024 18 0	1,634 3 7
Gibb & Mitchell, Coulsdon	3,032 18 6	1,060 1 1	2,643 10 0	2,789 19 1	—	—
Kay, H., Ltd., Horsham	3,069 12 7	995 19 8	2,553 9 0	2,678 1 4	1,141 15 5	1,566 1 7
Mears Bros.	2,738 8 8	1,131 14 4	2,820 4 8	2,540 6 10	999 12 8	1,612 18 4
Tarmac, Ltd.	*2,395 7 0	1,045 18 11	2,599 15 0	*2,212 6 5	*945 0 3	1,444 15 11
Wimpey, G., & Co., Ltd.	2,673 19 6	1,115 5 11	2,846 16 8	2,888 4 10	1,149 17 6	1,602 10 5
Yewen, E. B., Croydon	—	—	—	—	1,067 19 6	1,651 10 1

(Remainder of London.)

Coventry.—Rebuilding "Smithfield Inn" public house in Hales-street, for Messrs. Bass, Ratcliffe & Gretton, Ltd., brewers, Burton-on-Trent. Messrs. Hattrell & Wortley, L.R.I.B.A., architects, 1, Queen's-road:—

*W. H. Jones & Sons, Ltd., Coventry.

Crewkerne.—Further 20 houses on the Severalls site, for the Council:—

*W. Bridge & Sons, Crewkerne.

Croydon.—New schools, etc., for the C.B.:—

Erection of Kensington-avenue school—
Tamworth Park Construction Co., Ltd. £12,650 0 0
W. F. Goodchild 11,617 0 0
J. B. Sharman, Ltd., Ramsgate 11,431 0 0
Spiers, Ltd., Glasgow 10,921 5 3
J. Elliman & Sons, Ltd., Beckenham 10,882 0 0
R. Mansell 10,850 0 0
J. Crewdson, Horley 10,830 0 0
G. F. Wallis & Son, Ltd., Maidstone 10,786 0 0
F. Hipperson & Son 10,750 0 0
Truett & Steel, Ltd. 10,697 0 0
F. Liley & Son 10,600 0 0
H. Bacon & Son, Ltd. 10,594 0 0
E. H. Smith 10,546 0 0
G. J. Green & Son, Ltd. 10,538 0 0
J. Smith & Sons (Norwood), Ltd. 10,376 0 0
Hammond & Barr, Ltd. 10,360 0 0
E. J. Saunders 10,180 0 0
T. Wade & Sons, Ltd., Wath-upon-Dearne 10,177 0 0
Limpus & Son 10,126 0 0
Hawkins & Co. 10,120 0 0
*S. E. Adams, Chalkwell-avenue, Westcliff-on-Sea 9,939 0 0

Oval school (ground floor)—
North of England School Furnishing Co., Darlington ... 329 11 9
Educational Supply Association, Ltd., Stevenage 320 18 9
Kingfisher, Ltd., West Bromwich 319 15 6
Bennet Furnishing Co., Ltd. ... 300 11 0
Geo. M. Hammer & Co., Ltd. 300 5 9
Wake & Dean, Ltd., Yatton ... 290 17 6
*Mann, Egerton & Co., Ltd., Norwich 282 0 0

Various schools to be reorganised—
North of England School Furnishing Co., Darlington ... 345 10 4
Educational Supply Association, Ltd., Stevenage 331 13 2
Kingfisher, Ltd., West Bromwich 316 9 6
Geo. M. Hammer & Co., Ltd. 313 1 2
Bennet Furnishing Co., Ltd. ... 312 4 10
Mann, Egerton & Co., Ltd., Norwich 299 4 0
*Wake & Dean, Ltd., Yatton ... 282 1 6

(Remainder of London.)

Croydon.—Sub-station buildings, for the C.B.:—

Edgehill-road sub-station—
Grace & Marsh £383 0 0
G. Poulton & Sons 365 5 2
E. H. Smith (Croydon), Ltd. 365 0 0
D. Waller 346 0 0
*E. J. Saunders 315 0 0

Priory-road sub-station—
D. Waller 206 0 0
E. H. Smith (Croydon), Ltd. 198 0 0
Grace & Marsh 196 0 0
G. Poulton & Sons 194 6 10
*E. J. Saunders 192 0 0

Mitcham-road cemetery sub-station—
Grace & Marsh, Ltd. 215 0 0
F. Liley & Sons 206 0 0
G. Poulton & Sons 186 18 0
Truett & Steel, Ltd. 186 16 0
E. H. Smith (Croydon), Ltd. 185 0 0
Maides Bros. 182 0 0
E. J. Saunders 175 0 0
*D. Waller 159 7 0

Kynaston-road—
*D. Waller 189 0 0

The Glade—
*G. Poulton & Sons 207 10 0

Darwen.—Congregational church at Highfield with accommodation for 350 persons, for the Congregational Union Authorities. Mr. J. B. Thornley, F.A.A.S., architect, 45, Market-street:—

*R. Shorrock & Sons, Ltd., Darwen.

Dumbarton.—Housing scheme at Bridgend. Mr. A. W. Jeffreys, Burgh Engineer and Surveyor:—

Digger, brick and mason works—*Angus M. McDougall, 24, Dewar-street, Bridgeton, Glasgow.
Joinery, carpentry and ironmongery works, etc.—*W. Jack & Co., 9, East King-street, Helensburgh.
Slater work, etc.—*Matthew Thom & Co., Ltd., 74, Bank-street, Airdrie.
Plumber work, etc.—*Kilpatrick & Bremner, 19a, Church-street, Dumbarton.
Painter work—*J. Duffy, Dumbarton.
Plaster work, etc.—*Matthew Thom & Co., Ltd., 74, Bank-street, Airdrie.

Dunfermline.—210 houses at Ballycoman, for the T.C. Mr. D. H. Shaw, Burgh Architect:—

*James Stewart & Son, Dunfermline.

Edinburgh.—24 houses at Broughton-road, and furnishings required for huts, Pilton hospital, for the T.C. Mr. E. J. MacRae, A.R.I.B.A., City Architect, City Chambers, Edinburgh.

Mason and brick work—*W. Arnott McLeod & Co., Ltd., Russell-road.
Carpenter work—*Ritchie & Anderson, Cairnington-street, Motherwell.
Glazier work—*Munro & Co., 29/30, George IV. Bridge.
Slater work—*W. McLean, 12, South Fort-street.
Plumber work—*Shaw & Gibson, 48, West Register-street.
Plaster work—*W. B. McNair, 42, North-street, Armadale.
Painter work—*W. Wintour & Sons, 17, Stafford-street.

(Remainder of Edinburgh.)

Edinburgh.—Eight bungalows at Durham-avenue, Portobello. Mr. A. L. Goodwin, architect, 34, Castle-street:—

*Brown & Cossar, 38, Newbiggins, Musselburgh.

Edinburgh.—New residence and garage at Colington-road. Messrs. Charles E. Tweedie & Sons, architects, 54, Frederick-street:—

*Charles McKendrick, 2, Charlotte-square, Edinburgh.

Giffnock.—Eighteen four-apartment houses at Rowley-avenue, for the Council. Messrs. J. & J. Dixon, architects, Kilmarnock-road:—

*J. & J. Dixon, Builders, Kilmarnock-road, Giffnock.

Glasgow.—New bridge over railway at Craigton-road, for the T.C. Mr. T. Somers, M.Inst.C.E., Master of Works:—

Masonry, etc.—
*Gebbie & Co., 11, Ralston-road, Bearsden, Dumbartonshire ... £6,247 5 11

Steel construction work—
*Redpath, Brown & Co., Ltd., 19, Waterloo-street, Glasgow ... 3,186 3 4

Glasgow.—Reconstruction of premises at Trongate, for Messrs. Methuens, Ltd.:—
*Archibald Hamilton, Ltd., Glassford-street, Glasgow.

Glasgow.—Reconstruction and additions at Trongate and Stockwell premises of Holburn's (Granite House), Ltd. Mr. James Taylor, architect, 220, West Regent-street:—
*E. Pollard & Co., Ltd., Broomielaw, Glasgow.

Glasgow. — New villa in Westerton-avenue, Bearsden-road. Messrs. James Taylor & Son, architects, Temple, Anniesland:—
*James Taylor & Sons, Anniesland, Glasgow.

Guildford.—Six houses at Pathfield, Shere, for the R.D.C. Mr. J. W. Wilton, F.S.I., Engineer and Surveyor:—

T. Swayne & Son, Ltd., Guildford	£2,963 0
Enticknap Bros., Wormley	2,424 0
The Guildford & District Guild of Builders, Ltd., Guildford	2,610 0
W. G. L. Sheppard, Guildford	2,694 0
Watson & Farnfield, Cranleigh	2,620 10
T. Milton & Sons, Ltd., Witley	2,568 0
A. Grove, Guildford	2,386 0
*Panter & Le Clercq, Farnham	2,384 5

Harrogate.—Painter's work at Devonshire-place housing estate, comprising 208 houses, for the T.C. Mr. C. E. Rivers, Borough Engineer and Surveyor:—
*Archer & Co., 45, Cold Bath-road, Harrogate £395

Harrogate.—Rebuilding the retaining wall at Oak Beck, North Disposal Works, Bilton, for the Corporation. Mr. C. E. Rivers, Borough Engineer and Surveyor:—
*F. Reynard, Killinghall Moor, Harrogate £541 19 6

Hayes and Harlington.—Public convenience at Botwell recreation ground, for the U.D.C.:—
*Waters, Phillips & Son, North-road, Southall £3,114 7 7
(Surveyor's estimate: £3,167.)

Headingley.—Construction of a columbarium and garden of rest at the Lawnswood cemetery, for the Headingley Burial Board. Messrs. Kirk & Tomlinson, architects, 1, Albion-street, Leeds:—
*Hy. Atkinson & Sons.

Heston and Isleworth.—Erection of the Marlborough senior school in London-road, Isleworth, for the U.D.C.:—
*W. J. Harris, Hounslow £23,804

Highley.—5 pairs of non-parlour type houses on their housing site at Highley, for the Cleobury Mortimer R.D.C. Mr. H. K. Bloodworth, clerk:—
J. Herbert Smith, Station-hill, Kidderminster £3,475 0
*Ellams & Doughty, Highley, near Kidderminster 3,467 10

Hollingborne.—Six cottages on the Maidstone-road site at Lenham, for the R.D.C.:—
*Lane, Potts & Co., Canterbury.

Huddersfield.—Six almshouses at Almondbury. Messrs. Abbey & Hanson, architects, 11, Cloth Hall-street, Huddersfield:—
Mason's work—*Graham & Jessop, Ltd., Moldgreen, Huddersfield.
Carpenter's and joiner's work—*E. Holdroyd & Sons, Henley, near Huddersfield.
Plumber's and electrician's work—*Geo. Garton & Son, Ltd., Huddersfield.
Roof tiler's and plasterer's work—*W. E. Jowitt, Huddersfield.
Painter's work — *Haigh Sykes, Almondbury, Huddersfield.
Concreter's work and asphalter's work—*John Cooke & Son, Ltd., Huddersfield.

Kidderminster.—58 houses on Aggborough estate, for the T.C.:—
*William Cooper & Son, Blackheath £20,599

Kingston-on-Thames.—Redecorations at the Richmond-road school, for the T.C.:—
*Idle, Ltd., Empire-chambers, Richmond-road, Kingston-on-Thames.

Kingston-on-Thames. — Redecorations at the grammar school, for the T.C.:—
*Bentalls, Ltd., Clarence-street, Kingston-on-Thames.

Kingston-on-Thames. — Internal decoration of houses in Ernest-road, for the T.C.:—
*Ide & Sons £338

Kingston-on-Thames. — External painting of Bonner Hill-road Council school, for the T.C.:—
*Ides, Ltd. £155 16 8

Lindsey.—House for police at Marton, near Gainsborough, for the C.C. Mr. Henry G. Gamble, F.R.I.B.A., County Architect, Bank-street-chambers, Lincoln:—

R. Scarborough, Lincoln	£858
Wildbores, Gainsborough	846
A. J. Elmes & Son, Gainsborough	794
H. Dorrington & Son, Gainsborough	726
T. Roper & Sons, Ltd., Sheffield	717
J. R. Marsh & Son, Blyton, Gainsborough	704
Lockwood & Baker, Althorpe, Scunthorpe	688
W. A. Major, Sturton-by-Stow	687
†A. E. Mason, Gainsborough	606

Lindsey.—House for the police at Donington-on-Bain, for the C.C. Mr. Henry G. Gamble, F.R.I.B.A., County Architect, Bank-street-chambers, Lincoln:—

Ingram Bros., Louth	£794 17 0
F. Hossack & Son, Ruskington, Sleaford	758 0 0
J. Tuxworth & Sons, Ltd., Louth	738 0 0
T. Roper & Sons, Ltd., Sheffield	734 0 0
W. A. Major, Sturton-by-Stow	696 0 0
R. H. Turner, Horncastle	673 0 0
†G. W. Horton & Son, Horncastle	589 10 6

Liverpool.—Church and hall in Mather-avenue, junction of Booker's-lane, Allerton, for the Liverpool Presbyterian Church Trustees. Messrs. Morter & Dobie, L. & F.R.I.B.A., architects, Dale-street:—
*J. William (Liverpool), Ltd., Liverpool.

London.—The following works contracts have been placed by the War Office during the week ending September 24:—
Warley, artificers' work—A. E. Andrews, Clacton-on-Sea.
Gosport—erection of dining-rooms, etc.—John Hunt, Ltd., Gosport.
Bulford Camp—new drainage system—J. B. Edwards & Co. (Whyteleafe), Ltd., London W.
Woolwich—repairs to slated roof—A. W. Allard & Co., Ltd., London, S.W.

London.—Tenders accepted by H.M.O.W. for the week ending September 26:—
Belfast Parliament Buildings—rubber flooring—Korkoid Decorative Floors, 13/17, Summerfield-street, Glasgow, S.E.
Reading District—ordinary works and repairs—W. A. Murley, 68, London-street, Reading.
Southampton district—ordinary works and repairs—A. E. Jukes & Son, Ltd., Paynes-road, Southampton.
Newport District—maintenance—W. Edwards, Railway-buildings, Temple-street, Newport.
Exeter Head Post Office—alterations—Ham & Passmore, 17, Sidwell-street, Exeter.
Foreign Office—electric lift—J. Bennie, Ltd., 151, Moncur-street, Glasgow.
Orpington district—ordinary works and repairs—Glassup & Co., 131, High-street, Orpington.
Norwich Head Post Office—internal and external painting—J. Youngs & Son, Ltd., City-road Works, Norwich.
Churston Telephone exchange—erection—Willcocks & Barnes, Lower Polsham-road, Paignton.
Castle Bromwich Telephone Exchange—erection—E. G. Brown & Sons, Stuart's-road, Stechford, Birmingham.
Hampton Court Palace—painting—W. Chappell & Co., Ltd., 243, Elgin-avenue, Maida Vale, W.9.

London.—Supplying and fixing of the hollow sound and fire resisting floors at the first of tenements of the St. John's College estate, for the Battersea B.C.:—
*Caxton Floor, Ltd., 16, Caxton-street, Westminster, S.W.1... £1,805 8 10

London.—Supplying and fixing steelwork for the conversion of a portion of the Lombard-road stables as a garage, for the Battersea B.C.:—
*Dorman, Long & Co., Ltd., Nine Elms-lane, Battersea, S.W. £548 10

Longford.—24 five-roomed houses on the Major's Well-road and the Dublin-road sites, for the U.D.C.:—
*P. Kennedy, Galway £11,193 18 7

Lutterworth.—Rectory at Peatling Parva, for the Ecclesiastical Commissioners. Messrs. Willard, Son & Ellingham, architects, Boughton House, Market-place, Rugby:—
*P. Rourke, Lutterworth.

Manchester.—Warehouse and offices in Cow-lane and Clayton-lane, Clayton, for the Rubber Heel Manufacturing Co., Chatham-street, Clayton. Mr. J. Frith, architect, Allesby, Droylesden:—
*T. Penny & Sons, Ltd., Manchester.

ESTIMATING ON RIGHT LINES

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Mansfield.—Alterations and extensions, for the Board of Management of the Harlow Wood Orthopædic Hospital, Harlow Wood, near Mansfield. Messrs. Bromley, Cartwright & Waumsley, F. & A.R.I.B.A., Prudential-buildings, Nottingham:—
*Henry James, junr., Mansfield.

Middleton.—325 lin. yd. of 5 ft. high wrought-iron fencing and 3 hand gates for the Boarshaw housing scheme, for the T.C. Borough Engineer and Surveyor:—
*Bayliss, Jones & Bayliss, Wolverhampton £114 8

Mutford and Lothingland.—12 houses at Pakefield, for the R.D.C.:—
†S. D. Woodyard £3,756

North Witchford.—For (a) 12 more houses at Wimblington, and (b) 12 more at Manea, for the Council:—

(a)

H. Lofts, Littleport	£4,020 0
Read Bros., Grantham	3,802 0
E. Turner, March	3,600 15
†T. W. Dack, Doddington	3,585 13

(b)

Read Bros.	£3,826 0
Tombleson & Son, Manea	3,660 10
†T. W. Dack	3,635 0

Oswestry.—10 houses at Morda, for the R.D.C.:—
*Francis Roberts, Trevor £3,442

Penrhiwceiber.—Additions and alterations to the club premises in Penrhiwceiber-road, for the British Legion and United Services Club and Institute, Ltd. Messrs. Morgan & Elford, architects, 1, Jeffrey-street, Mountain Ash:—

Dd. Davies & Sons, Cardiff	£2,197 0
Gwilym Davies, Aberdare	1,896 0
Wm. Buckler, Abercwmboi, Aberdare	1,794 18
Tom James, Ystradmynach	1,775 0
Sam Winnell & Sons, Aberdare	1,650 0
*Wm. Blackburn, Ashgrove, Treharris	1,631 10

Poole.—Alterations and additions to Legland-street schools, for the T.C. Mr. E. J. Goodacre, A.M.Inst.C.E., Borough Engineer and Surveyor. Quantities by Mr. E. C. Harris, 3, Bedford-square, W.C.1:—
*J. H. Wilson & Sons, Highcliffe-works, Sandbanks-road, Parkstone £8,213 1 3

Ripley.—Five houses at Norman-road, for the U.D.C.:—
J. Wildman, Langley Mill (per house) £312

Salford.—New High School for 650 girls at Pendleton, for the E.C. Architect's Department, Education Offices, Chapel-street, Salford:—
‡Normanton's, Ltd., Manchester.
(Estimated cost £32,750.)

Saltcoats.—New National Bank branch at Dockhead-street, for the National Bank of Scotland, Ltd. Messrs. A. Balfour & Stewart, architects, 110, Blytheswood-street, Blytheswood-square, Glasgow:—
Digger, brick and mason works—*J. G. Dewar, 95, Pollock-road, Langside, Glasgow.
Joinery and carpentry works, etc.—*Lawson & Co. (Govan), Ltd., Park Sawmills, Govan, Glasgow.
Plumber work, etc.—*Duncan Stewart, Sanitary Engineer, Glasgow.
Slater work, etc.—*G. White & Co., Ltd., 26, Paul-street, Glasgow.
Glazier work, etc.—*The City Glass Works, Ltd., West Graham-street, St. George's, Glasgow.
Plaster work, etc.—*W. Sinclair & Son, Saltcoats.
Tile and terrazzo works—*Toffolo, Jackson & Co., 110, West Regent-street, Glasgow.

Scarborough.—First section of the Hinderwell school, for the T.C. Mr. H. W. Smith, Borough Engineer:—
*T. Jaram & Sons, Gladstone-street ... £20,000

Slough.—Extensions to the "Brickmakers Arms" in Stoke-road, for Messrs. Barge & Co., Ltd., brewers, Victoria Brewery, Windsor. Mr. J. H. Stribling, A.R.I.B.A., architect, 65, High-street:—
*H. D. Bowyer, Mackenzie-street, Slough.

Southend-on-Sea.—Transformer sub-stations at the junction of Hadleigh-road and Burnham-road and in Highfield-crescent, for the C.B.:—
*J. Wilson (Thorpe Bay), Ltd. £556 and £506

Southend-on-Sea.—Erection of the Thorpe junior and infants' school, for the C.B.:—
*Speirs, Ltd., Glasgow £31,994 2 4

Stoke-on-Trent.—56 houses on the Carmountside site, for the T.C.:—
*C. Cornes & Son, Hanley £20,520

Stoke-on-Trent.—14 houses, in Warrington-street and Brunswick-street, Fenton, for the T.C.:—
*Finney & Broadhurst, Burslem... £5,176 13
(In lieu of tender withdrawn.)

Stoke-on-Trent.—Erection of Hanley-road sub-station, for the T.C.:—
*Naylor & Nutt £772 10

Sunderland.—26 houses at Castletown and 26 at Ford, for the R.D.C.:—
*Henry Bell, Ltd., Ryhope, Sunderland.
(In lieu of tender withdrawn.)

Wallsend-on-Tyne.—Four shops at the corner of High-street and Park-road. Mr. W. Riddle, architect, 53, Denham-terrace:—

*Executors of J. Duffy, 53, Denham-terrace, Wallsend.

Walsall.—Shop and office, for the T.C. Mr. J. Taylor, Borough Surveyor:—

*J. R. Deacon, Walsall £3,631 4 6

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Warrington.—Internal decoration and external painting of pavilions, etc., at Weaverham Sanatorium, for the Corporation. Borough Surveyor:—

*Wm. Winstanley & Co., Park-place, Warrington.

Wayland.—Houses, for the R.D.C.:—

Attleborough, 9 houses, Ellingham-road site—

*S. Tennant & Sons, Watton £2,890

Carbrooke, 2 houses—

*C. Cordy, Hingham £535

Ovington, 2 houses—

*C. Cordy £575

West Ham.—Dredging and other works at Bow Creek, for the T.C.:—

Holloway Bros., Ltd.	£15,442	12	2
Sir John Jackson, Ltd.	14,596	6	6
L. J. Speight, Ltd.	13,539	13	7
John Mowlem & Co., Ltd.	12,980	7	9
*W. & C. French, Ltd	10,958	4	0
Joint Engineers' estimate	10,405	0	0

West Ham.—New Bow Tidal Lock at Bromley, for the T.C.:—

Scott & Middleton	£39,580	0	11
Sir Robert MacAlpine & Son ...	39,535	0	4
Sir John Jackson, Ltd.	38,638	14	0
Topham Jones & Railton	38,288	14	6
L. J. Speight, Ltd.	34,916	17	0
W. & C. French, Ltd.	34,680	9	1
Holloway Bros., Ltd.	31,413	2	10
*John Mowlem & Co., Ltd.	29,868	17	5
Joint Engineers' estimate	27,747	16	6

West Hartlepool.—New isolation hospital, for the T.C. Mr. F. Durkin, Borough Engineer:—

*E. M. Tweddle, Ltd., Osborne-road, West Hartlepool.

Weston-super-Mare.—Electrical installation in connection with the erection of new convalescent home at Kewstoke, for the Birmingham Hospital Saturday Fund. Mr. W. H. Martin, architect, 164, Corporation-street, Birmingham:—

*W. T. Hellaby & Co., Ltd., 80, Dale End, Birmingham.

Willington (Durham).—New Sunday school at the Wesleyan Church. Mr. W. A. Kellett, architect, York:—

*J. Amory, Willington.

Wood Green.—Re-decoration of the public health department, council chamber, and committee room, for the U.D.C.:—

*A. Bedford £120

Wolverhampton.—Alterations and improvements to St. John's Church School. Messrs. Flemming & Sons, architects, Queen's-square:—

*J. Clark, St. George's-parade, Wolverhampton.

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BETHNAL GREEN, LONDON.

Wolverhampton.—Sewage disposal scheme, for the T.C. Messrs. Dodd & Watson, consulting engineers:—

*Wilson Lovatt & Sons, Ltd., Wolverhampton £71,891 0 3

York.—Additions to the "Trafalgar Bay" public-house, Nunnery-lane, for Messrs. Samuel Smith Old Brewery (Tadcaster), Ltd., the Old Brewery, Tadcaster. Messrs. Cowe & Lawson, A.R.I.B.A., architects, Central-chambers, Chester-le-Street, Co. Durham:—

*Shepherd & Son, Ltd., York.

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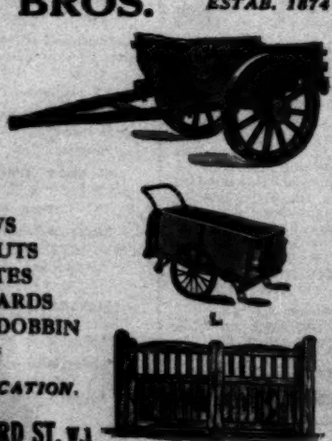
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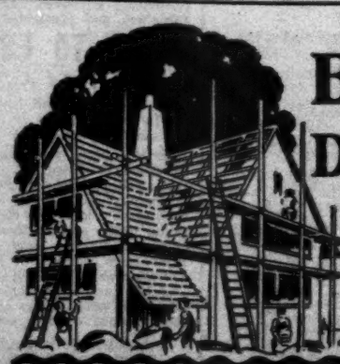
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